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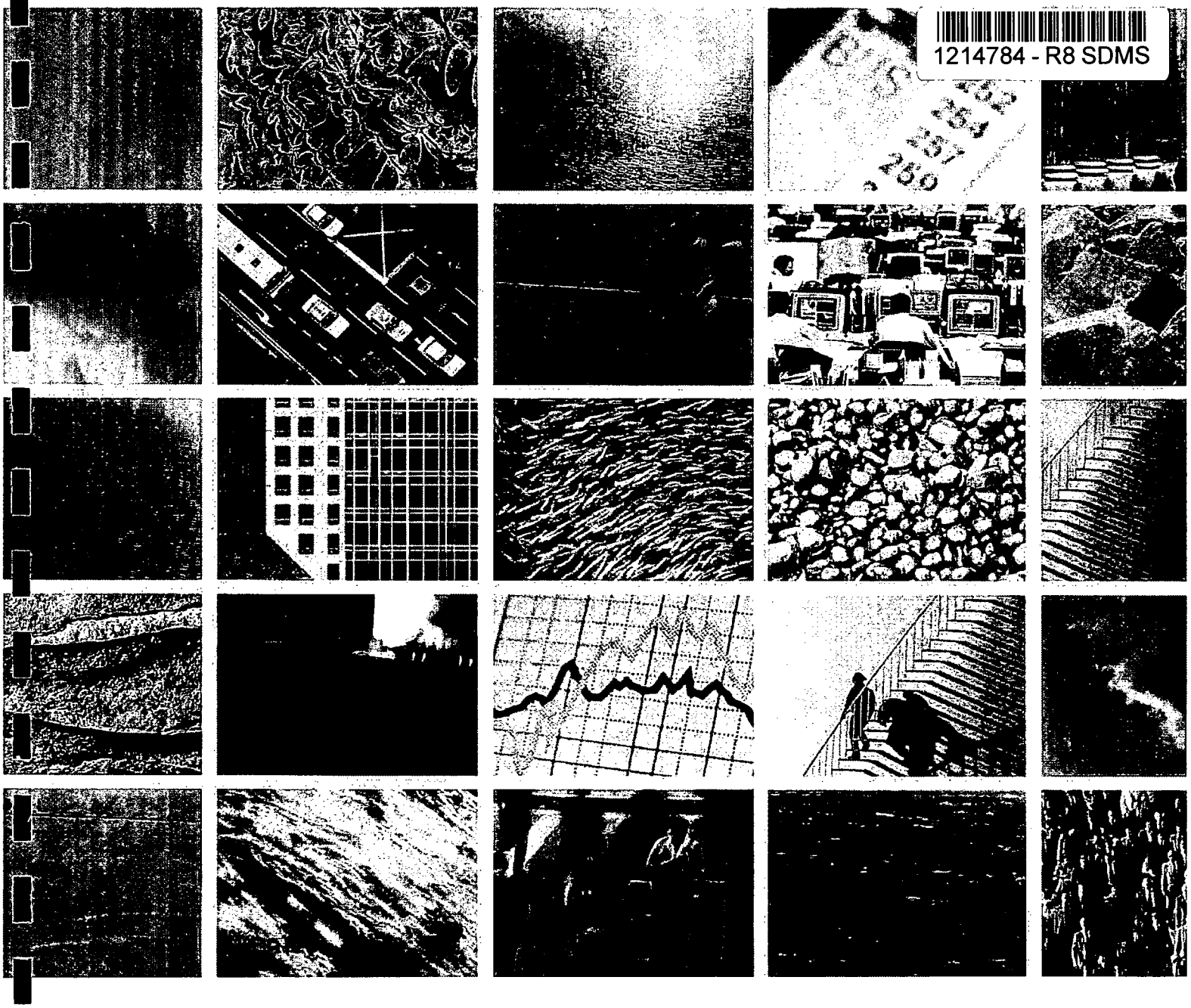

Site Redevelopment Work Plan

Presented to:
EA Land Investment, LLC
c/o PEG Development
480 West 800 North - Suite 203
Orem, Utah 84057

Salt Lake Mixed Use Hotel Project
(former Vermiculite Intermountain Site)
100 South 300 West
Salt Lake City, Utah

Draft – June 2010

Environmental Resources Management
102 West 500 South, Suite 650
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ERM

Delivering sustainable solutions in a more competitive world

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REPORT

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Salt Lake Mixed Use Hotel Project
(former Vermiculite Intermountain site)
100 South 300 West
Salt Lake City, Utah

June 2010

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1.0 INTRODUCTION

Environmental Resources Management-West, Inc. (ERM) has prepared this Site Redevelopment Work Plan ("Plan") on behalf of EA Land Investment, LLC (hereafter referred to as the "Owner"), which is in the process of developing the Richard Gordon Property, located at 100 South 300 West in Salt Lake City, Utah (the "Site"). This plan has been prepared for submittal to the U.S. Environmental Protection Agency (EPA) and the Utah Department of Environmental Quality (UDEQ) (hereafter referred to as the "Agencies") for review and approval prior to taking the next steps towards redeveloping the property.

1.1 PURPOSE

The Owner has taken appropriate actions to establish its bona fide prospective purchaser ("BFPP") status under CERCLA § 101(40) and § 107(r). This Plan identifies the technical issues associated with redevelopment of the Site, which must be observed by the Owner, in order to satisfy Section 5a (Activity and Use Limitations) of the Environmental Covenant that is transferable with ownership of the property in accordance with and agreement between the EPA and La Quinta (former land owner) and was signed in 2007.

The purpose of this Plan is to identify the requirements that will ensure that the Institutional Controls set forth in the Environmental Covenant are satisfied. In accordance with the Environmental Covenant, this work plan will be submitted to the Agencies for review and approval. The overall intent of the Plan is to identify potential impacts associated with redevelopment, and define the engineering controls to be used to protect human health, the environment, and the adjacent areas.

1.2 BACKGROUND AND REGULATORY STATUS

The Site is approximately 3.4 acres in size, and currently includes an approximately 29,000 square foot warehouse building on the northeast portion of the property. The building construction consists of a concrete slab floor, block/brick walls, and a wood/metal asphalted roof. An asphalted parking lot surrounds the warehouse building, with access from the north on 100 South Street and from the east on 300 West Street.

The Site has been developed since at least 1889. The property has been utilized for residential, lumberyard, trucking and freight depot, railroad

lines, and various warehousing operations. The most recent use for the warehouse building was as an auto parts wholesale company listed under the name Frank Edwards Company.

The Site is part of the historic Vermiculite Intermountain Plant Site, which has had amphibole asbestos identified in the soil. Impacts at the Site resulted from prior operations at an adjacent property and earthwork that mixed limited amounts of amphibole asbestos into the shallow soils. Because some potentially contaminated subsurface soils remain at the Site, the Agencies (EPA) developed an Environmental Covenant that contains specific Institutional Controls to govern future disturbance of the asphalt and concrete surfaces that serve as protective covers over the asbestos-containing soil, which extends to a depth of approximately 10 feet below ground surface (bgs) according to historic site investigations.

2.0 SCOPE OF SITE MODIFICATIONS

This section provides a brief summary of the proposed Site redevelopment plan, followed by descriptions of the Site restrictions and activities that will require engineering controls to ensure that the Environmental Covenant's Institutional Controls are satisfied.

2.1 SUMMARY OF REDEVELOPMENT PLAN

The Owner is considering commercial uses for the Site. The commercial space will include two hotels, retail stores, restaurants, and a multi-level parking structure. The draft site development drawings are included as Appendix **A** for informational purposes. Although some revision of the site plans may occur as project engineering is completed, the subsurface earthwork and protective measures described in this plan are not expected to be significantly modified.

2.2 RESTRICTIONS ON SITE MODIFICATION

In accordance with the Environmental Covenant, the Owner must comply with all activity and land use limitations established by the Institutional Controls. A copy of the Environmental Covenant is included as Appendix **B** to this *P*lan. The activity and land use restrictions associated with redevelopment of the Site are summarized below:

- The owner shall prevent the release of amphibole asbestos from underneath soil caps and impermeable surfaces at the Site.
- The Owner must notify *D*EQ and EPA in advance regarding any project which will disturb the cap. The Owner must submit a written work plan to *D*EQ and EPA describing the nature of the project and the work practices and engineering controls to be used to prevent emissions of amphibole asbestos.
- Any activity at the Site which disturbs the cap should be conducted, at a minimum, in compliance with the existing federal government and State of Utah asbestos regulations.
- The Owner is required to follow U.S. Occupational Safety and Health Administration ("OSHA") regulations for workers exposed to asbestos.

- The Owner must take steps to prevent or limit human exposure near the Site to amphibole asbestos during any activity that disturbs the cap.

- Decontamination must be considered for workers, equipment, vehicles, or any other thing that enters the work zone. The collection and disposal of decontamination water must also be addressed.

- Procedures must be established and described for preventing emissions from any amphibole asbestos-contaminated soils as they are excavated and transported for disposal.

- Any activity that will disturb the cap must be conducted by workers experienced with outdoor asbestos cleanups, preferable workers experienced in cleaning up amphibole asbestos contamination.

- The Owner shall pay UDEQ for oversight and review in accordance with UDEQ's fee schedule.

2.3 *BUILDING DEMOLITION AND SITE GRADING*

Redevelopment will require demolition of the existing building, some soil excavations, and placement of earth fill to prepare the land for new structures and other proposed infrastructure. The Owner will generally work within the existing grades to the extent possible, as a means of minimizing the disturbance of asbestos-containing soil.

The existing warehouse building will be demolished. Prior inspection and sampling of building materials showed asbestos-containing materials (ACMs) in vinyl flooring, vinyl floor tiles, joint compound, and roofing tar. The ACMs will be properly abated and removed prior to demolition of the building. A copy of the ACM assessment report is provided as Appendix C. Once the building is removed, portions of the concrete and asphalt surfaces, and asbestos-containing soil will be excavated. The excavated asbestos-containing soil will be relocated on site beneath the proposed parking structure to the extent possible. Excess soil will be removed from the site for disposal in an approved landfill. Additional details pertaining to the excavation activities and management of affected soil are presented in the sections that follow.

2.4 *FOUNDATIONS/GEOPIERS*

The proposed development will consist of two primary structures. The first will be an "L"-shaped, six-level retail/residential (hotel) structure, with the first level being established within one to two feet of existing grade. Structural loads will be transmitted downward through bearing walls and columns to the supporting foundations. It is projected that the maximum real wall and column loads will be on the order of 15 to 20 kips per lineal foot and 400 to 600 kips, respectively.

The second structure will be a four-level parking structure. The building will be established with a slab-on-grade with reinforced concrete construction. Structural loads will be transmitted downward through bearing walls and columns to the supporting foundations. It is projected that the maximum real wall and column loads will be on the order of 16 to 22 kips per lineal foot and 600 to 800 kips, respectively.

The proposed moderately to lightly loaded footings must be underlain by varying thicknesses of granular structural fill extending to the natural soils underlying the existing surface fills. The heavily loaded foundations will require soil to a depth of 12 to 14 feet to be improved by installing Geopiers® or another similar ground modification system. Since the existing surface fills exhibit variable and generally poor engineering characteristics, Geopiers® or a similar ground improvement system has been recommended beneath the at-grade building slabs.

The Geopier® system will consist of densely-compacted, successive thin lifts of high-quality, crushed rock in 2- to 3-foot diameter cavities of varying depths. The Geopier® system may be installed using replacement or displacement methods, depending on site requirements and installation costs. The result of construction is a reinforced zone of soil directly below footings that allows for construction of shallow spread footings proportioned for a relatively high bearing pressure. Geopier® elements are spaced individually under continuous footings or in close groups to support concentrated column loads.

The complete geotechnical evaluation report from which these foundation details were obtained is included as Appendix **D** of this Plan. The Owner understands that soil removed for ground improvement and foundations that may contain asbestos will require proper handling and replacement on site, or removal for off-site disposal at an approved facility.

2.5 *UTILITY INSTALLATION*

Redevelopment will involve installation of general utilities required to serve commercial and hotel spaces. These will include general city services such as water, sanitary sewer, and storm drain utilities. They will also include power utilities including electrical and natural gas lines, and telecommunication services such as telephone, cable, and fiber optics.

Efforts will be made to align primary utilities (i.e., main/trunk lines) within corridors to limit the disturbance of asbestos-containing soil to the extent possible. The Owner also proposes to remove asbestos containing soil from beneath buildings to a depth of 4 to 6 feet (as required) to enable all initial utility installations and potential, future repairs, modifications or additions to be performed in clean fill soil. The Owner understands that any soil removed for utility installation that may contain asbestos will require proper handling and replacement on site, or removal for off-site disposal at an approved facility. The boundary dividing the clean fill soil and underlying (remaining) asbestos-containing soil will require an appropriate, synthetic demarcation barrier.

2.6 *STORM WATER MANAGEMENT*

The Site is currently made up of all impervious surfaces. Storm water is currently managed in part through storm water catch basins and dry wells in the parking lot. Water has also been observed to pool in some low areas of the parking surface until it evaporates or is removed by pumping it to the city storm water system (or gutter) at the property boundary. The proposed redevelopment is expected to result in no additional storm water runoff. The Owner will account for storm water management and provide appropriate storm water collection systems and retention basins (if needed) in accordance with the Utah DEQ Division of Water Quality requirements. The storm water controls are described further in Section 3.

2.7 *LANDSCAPING*

Landscaping at the Site may consist of small areas of grass, bushes and small trees located between the roadways and buildings. Some plants may be placed in planter boxes. All vegetation will be planted in imported soil and have roots systems that do not penetrate deeper than the imported, clean soil, such that they do to reach the asbestos-containing soil beneath the demarcation layer.

2.8 *ACCESS PROVISIONS FOR AGENCY*

As stated in the Institutional Controls, the Owner grants to the EPA and UDEQ, their respective agents, contractors, and employees, a right of access to the Property for inspection during and after redevelopment activities to assure implementation and enforcement of the Environmental Covenant.

2.9 *SITE PERMITS*

This work will require the completion of traditional permit applications relevant to this site. It is anticipated that the following construction and environmental permits will be required for this project from the listed agencies:

- Zoning review and possible adjustments for the proposed land uses by the Salt Lake City Planning & Zoning Commission and the Salt Lake City Council;
- Construction permit, including approval of public utility plans by the Salt Lake City Department of Public Utilities;
- Utah Pollutant Discharge Elimination System (UPDES) general permit for storm water discharges associated with construction activity from the UDEQ, Division of Water Quality;
- Dust Control Permit from the UDEQ, Division of Air Quality, which accounts for the additional controls required due to the presence of low levels of asbestos in the soil; and
- Upon completion of the earthwork related to the asbestos-containing soil, the Owner shall submit to the Agencies written verification of compliance with the activity and use limitations contained in the Environmental Covenant.

3.0 ENGINEERING CONTROLS

This section describes the engineering controls to be employed to prevent the release of amphibole asbestos from underneath soil caps and impermeable surfaces at the Site during redevelopment.

3.1 EARTHWORK

Redevelopment activities will require removal of the existing asphalt and concrete surfaces overlying the asbestos-containing soil. It will also involve the excavation of asbestos containing soil, and placement of some of this fill on site in other areas to meet the planned elevations and grades. The Owner proposes to conduct the cap removal and excavation activities in a phased manner such that only limited areas of the asbestos-containing soil are exposed each day. The Owner will specify that the earthwork contractor shall only expose as much surface area as he is able to excavate, relocate, and compact in place (or remove from the property) during a single day.

The contractor will be required to place the demarcation barrier consisting of orange, plastic fencing material (or approved equivalent), and at least six inches of clean, imported fill, at the end of each day over areas where excavation and fill placement are complete. In cases where additional work is required between successive work days, temporary plastic liner (6-mil thick) with appropriate ballasts (to secure the liner) will be used to cover the exposed asbestos-containing soil. These areas may include the interfaces between successive excavation phases and areas of partial fill placement in the garage area. The liners shall be placed to secure all exposed, asbestos-containing soil at the end of each work day where the demarcation barrier and clean cover soil camot be placed.

The Owner will conservatively consider that all soil removed to depths of 15 feet contain amphibole asbestos unless proven otherwise through laboratory testing. This depth is expected to account for all soil materials removed during redevelopment, unless foundation preparation requires drillings to greater than 15 feet. To the extent possible, this soil will be reused as on-site fill beneath the proposed parking structure; however, the Civil Engineer has estimated that only three feet of fill may be placed in this area based on the required grades for entry and exit ramps.

All fill made up of asbestos-containing soil will be placed in lifts not exceeding eight inches in loose thickness. Each lift will be compacted to at least 90 percent of the maximum dry density on the wet side of optimum

as determined by the ASTM D698 compaction criteria. Compaction of each lift shall be conducted using a non-vibratory method that is suitable for the soil type (e.g., sheep-foot roller, or alternate approved by the Owners Representative). Compactors that use a vibratory or tamping method are not recommended due to the potential for dust generation. It is anticipated that the contractor will provide a demonstration of the proposed compaction method at the start of earthwork to assure that dust is not generated and that the geotechnical, compaction requirements are achieved. Excavated asbestos-containing soil that is not used on site will be loaded into trucks and hauled off-site for proper disposal.

3.2 *DUST SUPPRESSION AND AIR QUALITY PROTECTION*

During exposure and handling of the asbestos-containing soil, dust control measures will be implemented. The phased soil removal approach, described above, will limit the amount of soil exposed at one time, and reduce the potential for dust generation. Water shall be used to adequately wet and suppress dust in exposed areas and during placement and compaction in the garage area. Water will be applied judiciously to reduce dust generation, but not so much to flood the work area and cause water to seep deep into the soils.

Appropriate compaction methods will be employed to minimize dust generation, as described above. The exposed earthwork area will be monitored visually to ensure dust suppression is maintained. If water is found to be insufficient to control dust, additional measures, such as work stoppage, wind breaks/barrier and chemical treatments, will be considered and implemented.

Workers potentially exposed to asbestos-containing soils will wear personal dust monitoring devices (e.g., badges) to monitor potential dust concentrations near the intake (breathing) points of workers. Equipment operators will work within enclosed cabs, and access to exposed soil work areas by other employees will be limited to the extent practical. The contractor will be required to provide respiratory protection to workers consistent with the daily air monitoring results and OSHA requirements. Any activity that exposes workers to concentrations at or above the OSHA permissible exposure limit ("PEL") of 0.1 fibers per cubic centimeter will be conducted in accordance with the regulations for respiratory protection. Through development of this work plan, the Owner is providing notice to the Utah Division of Air Quality Asbestos Program of work that involves the disturbance of asbestos-containing soil. The contractor will be required to assume that dust containing asbestos is present in the air above

the PEL, until test results are obtained to demonstrate a less stringent Personal Protective Equipment (PPE) standard.

Perimeter dust monitoring will also be performed to assure and document that potential asbestos does not leave the Site boundary at unacceptable levels. The perimeter dust monitoring program will consist of periodic collection of three dust samples at locations around the perimeter of the work area, at the property boundary. One sampling device will be located upwind, and two downwind of the work area. Samples will be collected using portable vacuum pumps calibrated to collect the samples into cassettes over an 8-hour period for comparison to the PEL standard listed above. The sampling pumps will be placed at heights of approximately 4 feet above the ground surface to conservatively reflect potential breathing-zone heights. Samples will be collected daily during the first three days of earthwork, and then weekly if the PEL is not exceeded. If concerns for off-site migration are identified through the testing program, then additional protective measures will be implemented by the Owner and contractor, and the testing protocol (3 consecutive days) will begin again to assure the effectiveness of the new measures.

3.3 *UTILITY CORRIDOR DEVELOPMENT*

All utility lines (i.e., main and distribution lines) will be grouped within the footprint of the L-shaped commercial/hotel building and road behind (south and east) the building to minimize future disturbance of the asbestos-containing soils, if repairs are needed. Uhlity services for the garage building will be limited to electrical and storm water lines. Excavations and placement of clean fill will be provided such that these utilities can be installed in clean fill similar to the utilities for the retail and hotel building.

The Owner has selected to remove sufficient asbestos-containing soil from beneath these areas to enable future utility work to be performed without concern for encountering asbestos-containing soil. The utility corridors will be used for both wet and dry utilities with appropriate line spacing to satisfy the utilities' standard installation requirements. The demarcation layer will be placed to define the bottom of the clean utility corridors and spaces, and the beginning of asbestos impacted soil. The distance between the demarcation layer and the utilities will be such that future maintenance or repairs can be performed without coming in contact with the asbestos-containing soils. The specific locations and slopes of utility corridors will be determined as part of the final design activities.

3.4 *FOUNDATION INSTALLATION*

The geotechnical report indicates that the existing surface fills are not suitable, on their own, for conventional spread and continuous wall foundahons. To improve the soils such that conventional spread and continuous wall foundations can be used, it has been proposed that Geopiers® (or equivalent system) be installed. Utilizing Geopiers® in the fills and silty clay soils will allow for the support of higher loads associated with the structures.

Where the Geopier® systems are utilized; foundations must be established Geopiers®, site grading activities will be completed to the sub-grade elevations that match the base-of-footing elevahons. This will include the placement and compaction of select, granular fill over the asbestos-containing soil and demarcation barrier, such that the Geopier® installations will be performed over a clean working surface.

Two types of Geopier® systems are currently under consideration: 1) "conventional" 30-inch diameter soil displacement piers; and 2) new 12-inch "impact" piers that push and compact the native soil in place without requiring the removal of soil for pier installation. The impact Geopier® type would be preferable for this Site because it would not require the drilling and removal of affected soil for installation; however, the availability and cost for these new Geopiers® may make this method unfeasible. In the event that conventional Geopiers® are required, all asbestos-containing soil brought to the sub-grade surface will be properly managed through off-site disposal. It is expected that the maximum quantity of on-site fill placement will already have been completed prior to installation of the Geopiers®.

3.5 *STORM WATER MANAGEMENT AND SOIL EROSION CONTROL*

Storm water management planning will be required as part of the final redevelopment design. Appropriate management methods will be implemented for both the redevelopment (i.e., during construction) and post-construction phases of the project in accordance with the UPDES Phase II requirements.

Potential increases in storm water runoff during construction will be minimized to the extent possible through phased development of the Site. The existing drainage features will not be disturbed until necessitated by the redevelopment schedule. Temporary storm water diversions and channels, erosion control devices, and sediment retention catch basins will be prepared and maintained during redevelopment. Particular erosion

control measures will be specified and implemented during the handling of asbestos-containing soil. If possible, excavated materials will be relocated directly to their final destination to preclude the need for staging and erosion protection measures. However, if staging is required, the materials will be placed within plastic-lined berms to preclude erosion or migration of soil and potentially asbestos-containing soil via surface water runoff. Stockpiled soil will be covered with plastic with proper ballasts at times when precipitation is anticipated to preclude accumulation of rainwater in the bermed staging areas.

If rainwater does accumulate where it may come in contact with asbestos-containing soil, the water will be allowed to evaporate if possible, and any sediment or residue will be managed appropriately. In the unlikely event that weather conditions do not allow evaporation of the water, an alternative disposal or treatment method may be identified, e.g., temporary storage in tanks, filtration, and on- or off-site disposal (based on water quality testing). Any water that comes in contact with asbestos-containing soil and is to be discharged to storm drains via pumping will be filtered using a 10 micron filter to assure removal of particulates and potential asbestos.

Post-construction storm water management will be provided through installation of a curb and gutter system that diverts the water to below ground pipes. Details pertaining to piping locations and comections, and the calculation of post-construction storm water runoff rates and velocities, pipe sizes, and detention volumes are beyond the scope of this Plan. However, these evaluations will be performed as part of the final redevelopment civil engineering. The civil design is currently considering use of an on-site detention basin for storm water within the lower ramp of the parking structiire.

3.6 *MANAGEMENT OF CONTAMINATED SOIL*

Asbestos-containing soil removed from beneath the paved surfaces will be managed in accordance with the Environmental Covenant. The quantity of impacted soil to be excavated on a given day will be limited to the amount that can be properly handled through transportation off site to an approved landfill, or which can be replaced as common fill and compacted as sub-grade for the parking structure. Once exposed, the impacted soil will be managed for dust prevention until it is placed on site and covered with imported clean soil or disposed off site.

Asbestos-containing soil to be hauled off site will be taken to the Salt Lake Valley Landfill, or approved alternative, and disposed of as asbestos-

containing material. Each load of contaminated soil being hauled to the landfill will be properly wetted and the haul trucks covered to eliminate loss of soil or dust due to wind.

3.7 *EQUIPMENT AND PERSONNEL DECONTAMINATION*

Upon completion of earthwork and foundation installations that involve contact between heavy equipment and/or hand tools and asbestos-containing soil, the equipment/tools will be thoroughly decontaminated by washing equipment to remove visible soil. The Owner will require that the contractor establish a decontamination area for cleaning equipment that returns the decontamination liquids to the asbestos-containing soil surface, or allows capture of the liquids for filtration and particular/asbestos removal. A combination of these methods may be used depending on the stage of construction. The contractor will also be allowed to containerize the decontamination liquids using a temporary storage tank for subsequent batch filtration treatment. Decontamination liquids to be discharged from the site (e.g., storm drain system) will be filtered using a 10 micron filter to assure removal of particulates and potential asbestos.

Site workers may come into direct contact with the asbestos-containing soil (i.e., "contamination zone), particularly by walking over the exposed surfaces during earthwork, or potentially during foundation/ground improvement. Workers will be required to wear over-boots and gloves during these activities such that this PPE can be readily removed and kept within a secure container adjacent to the boundary of the contamination zone and adjacent clean areas. The PPE may be reused as workers enter the contamination zone, provided it continues to be in working condition. Upon completion of the work or as the PPE becomes unusable, all PPE that has been exposed to the asbestos-containing soil shall be properly packaged in plastic bags for disposal at the off-site landfill.

3.8 *SITE WORKER HEALTH AND SAFETY*

Redevelopment activities involving the management of asbestos-containing soil will require hazardous waste safety provisions for the workers. The OSHA regulations for workers exposed to asbestos, including permissible exposure limits, employee notification, monitoring methods, etc. will be observed by the contractor and the Owner's oversight inspector. Both parties will be required to develop site-specific health and safety plan for site workers, assure appropriate persomel training, and maintain a medical monitoring program in accordance the OSHA

requirements for work as hazardous waste sites (OSHA 1910.120). A health and safety plan for use by ERM employees performing field inspection services is attached as Appendix E.

The number of potential worker to work within the contamination zone will be kept to an absolute minimum. The minimum health and safety plan requirements will includes requiring appropriate PPE (with respiratory protection, as described under dust monitoring), employee training, engineering controls (e.g. wetting or containment), and air monitoring, when soils below a cap are disturbed.

3.9 *SITE SECURITY AND ACCESS*

A security fence surrounding the Site will be installed to limit access to authorized workers and accompanied visitors. It is expected that during redevelopment, certain sections of the fence will be removed or gated to enable vehicle and equipment access. These fences will be replaced to ensure security of the site as redevelopment continues. A security officer (or site foreman) will be on site during working hours to ensure that only authorized workers and visitors enter the work area. The security fence and locked gates will preclude site access during the night and weekends. All authorized visitors and contractors will be advised as to the general site safety and health requirements.

Additional measures will be performed to delineate the contamination zone, and distinguish it from the clean areas, such as placement of caution flagging affected areas. This procedure will be used to assure that site workers enter and exit the affected areas without cross contaminating soil in the clean areas. During intrusive activities into the asbestos-containing soil, special precautions will be taken to secure open excavations. Barricades and flagging will be used to denote the boundaries of excavations and to control access to these work areas. Additional access requirements and work area designations will be specified in the Site Health and Safety Plan to be prepared by the earthwork contractor.

4.0 *QUALITY ASSURANCE*

This section describes the general quality assurance protocol to be observed during redevelopment of the site, including inspections, testing, recordkeeping, and reporting. Where applicable, EPA guidance on quality assurance project plans and data quality objectives have been referenced.

4.1 *ASBESTOS AIR QUALITY AND PERSONNEL MONITORING*

The personal monitoring devices to be worn by workers in the contamination zone will undergo laboratory analysis in accordance with OSHA regulations. The laboratory results will be compared against the OSHA PEL of 0.1 fibers per cubic centimeter in accordance with the regulations for respiratory protection.

The perimeter dust monitoring samples will be analyzed in accordance with OSHA regulations. These laboratory results will be compared against the OSHA PEL of 0.1 fibers per cubic centimeter in accordance with the Utah DAQ asbestos remediation requirements.

4.2 *GEOTECHNICAL SOIL TESTING*

During redevelopment, the placement of fill materials on the asbestos-containing soil demarcation layer will be controlled through prescribed lift-thickness, compaction requirements, and field density testing.

All soil removed from beneath the existing cap and placed at another location beneath imported fill material will be performed in accordance with the Civil Engineer's Technical Specifications. The materials will be placed in a manner that meets the minimum compaction requirements for Salt Lake City, and the criteria proposed in this work plan of 90% of Standard Proctor Maximum Dry Density (ASTM D698) on the wet side of optimum moisture for dust control. The frequency of field tests will be prescribed by the Civil/Geotechmical Engineer.

Other soil materials placed on top of the demarcation layer will be given appropriate specifications for compaction density and moisture content, depending on the soil's use as structural fill, select fill, or common backfill. The frequency of field density and moisture testing will vary depending on the use of the soil and structural requirements, and prescribed by the Civil/Geotechnical Engineer.

4.3 *DEMARCATION LAYER INSTALLATION*

After removal of the existing cap, excavation of existing soils, and prior to placement of imported fill materials, an orange plastic netting/fence barrier will be installed to indicate potential areas of contamination below the barrier. In areas where cleanup work has already been performed, these barriers and caps already exist. If the existing barriers or other warning devices are encountered or damaged, the Owner will maintain or repair the barriers encountered. The barrier materials will be overlapped a minimum of two inches during placement. The contractor may use plastic ties or wire pins to assure the overlaps are maintained during placement of earth fill over the top of the demarcation materials.

4.4 *VISUAL INSPECTION*

In addition to the testing protocol described above, the Owner will retain a qualified, Professional Engineer for support during redevelopment activities involving asbestos soil management. The engineer (or his representative) will provide on-site, visual inspections during completion of the intrusive work into the existing soil, during placement of imported fill materials to the minimum required cover requirement, and installation of Geopier®, if a soil removal method is used. However, upon completion of these intrusive activities, the remaining redevelopment work above the clean cover is expected to consist of general construction activities in a clean environment. The engineer will be on-call for consultation to the Owner during these later activities, but is not expected to be on site for visual inspections.

4.5 *FIELD RECORDS*

Daily construction reports will be maintained by the Owner and/or his representative during the intrusive activities. An example daily construction report is attached as Figure **4-1**. These reports will identify the activities performed each day, on-site personnel, site conditions, and any environmental and/or safety incidents. These reports will be signed daily by the Construction Manager and the Professional Engineer's on-site CQA Representative.

The daily construction reports will be maintained for use in developing progress reports and a final Redevelopment Construction Quality Assurance Report for the Agencies, as described below.

4.6 *AGENCY REPORTING REQUIREMENTS*

During the intrusive redevelopment activities, the Owner or his representative will provide bi-weekly (every two weeks) progress reports to the Agencies to inform them of the work completed during the prior period, upcoming activities, and specific issues or actions that need to be addressed. The report will include copies of test results and daily reports for that period as attachments. In the event that unexpected site conditions are discovered during the work that would require deviations from this Site Redevelopment Work Plan, the Owner will contact the Agencies by phone to discuss the finding and reach an appropriate resolution.

Upon completion of the intrusive redevelopment activities, the Owner will provide to the Agencies a final Construction Quality Assurance (CQA) Report. This report will document the construction activities performed to prepare the site for redevelopment. It will include copies of all daily construction reports and testing results. The CQA Report will also identify the final disposition of all soil materials removed from the Site, and will include disposal manifests or receipts for materials removed for off-site disposal.

The CQA Report will be certified by a Utah Licensed Professional Engineer, who has provided oversight and direction during the work

4.7 *TERM OF QUALITY ASSURANCE BY DEVELOPER*

During the intrusive activities associated with redevelopment, the Owner will be responsible for ensuring the security of the site. This will include implementation of the engineering controls and quality assurance measures described in this plan.

5.0 *REDEVELOPMENT SCHEDULE*

As per the correspondence between the Owner and the Agencies, the Owner anticipates that the Agencies will provide joint acceptance of this Site Redevelopment Work Plan. The Owner will proceed with the redevelopment activities upon acceptance of the work plan by the Agencies, and when the earthwork contractor is retained for this service. The Agencies will be notified at least 7 (calendar) days prior to the start of intrusive earthwork activities.

Concurrent with submittal of this work plan to the Agencies for review and approval, the Owner is proceeding with the other engineering phases required to obtain site development approvals from Salt Lake City. The completion of detailed site drawings and permit applications to the city is expected to happen during summer 2010.

Upon approval of all plans and permits, construction will begin with the earthwork described in this work plan. The earthwork involving removal and management of the asbestos-containing soil is expected to require approximately one month, but this schedule may be subject to weather conditions and phasing of other aspects of the construction process.

Figures

Figure 4-1
Example Daily Construction Report

Figure 4-1
Example Daily Construction Report

ERM

CQA Daily Construction Report

Project:		Date:	
		Day:	
Job Number:		Weather:	
Client/Owner:		Report Number:	
Contractor(s):			

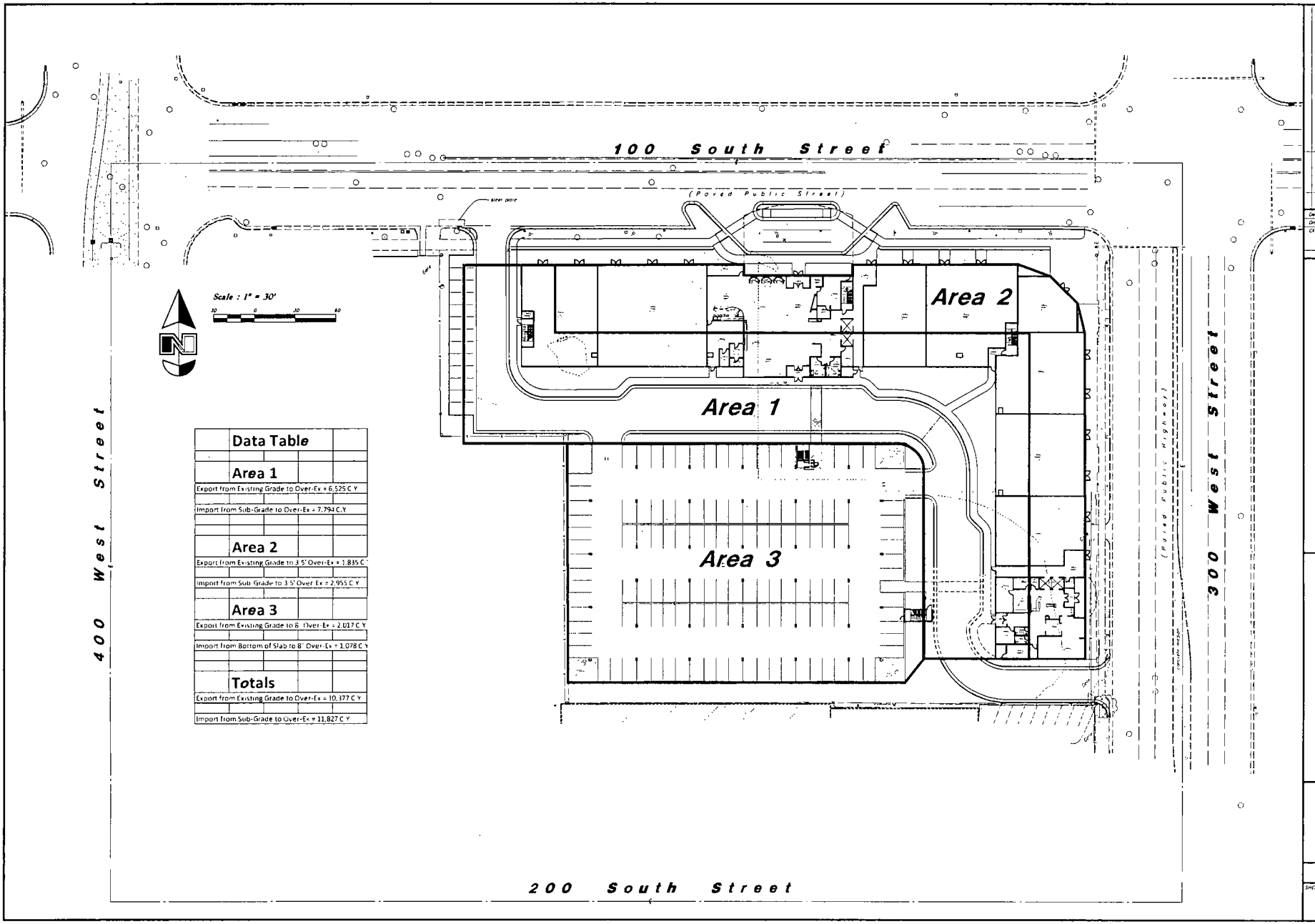
Visitors		
Name:	Representing:	Remarks:

Construction Activities

Construction Mngr. Date CQA Representative Date

Appendices

Appendix A
Draft Site Development Drawing(s)



Designed by BMC
Drafted by BMC
Client Name
PEG Development
09-85GP-VOLUMES

GREAT BASIN ENGINEERING - SOUTH
CONSULTING ENGINEERS and LAND SURVEYORS
2010 North Redwood Road P.O. Box 16747
Salt Lake City, Utah 84116

Preliminary Grading Exhibit

PEG Development

176 South 300 West, Salt Lake City, Salt Lake County, Utah
Lots 6, 7, and 8, Block 96, Plat "A", Salt Lake City Survey
A Part of the NE 1/4 of Section 1, T1S, R1W, SLB&M, U.S. Survey

19 Mar, 2010

SHEET NO
2

Appendix B
Environmental Covenant

To be recorded with County
Recorder – Utah Code Ann § 57-25-108

After recording, return to:

_____
_____
_____

10351643
2/20/2008 12:13:00 PM $38.00
Book - 9571 Pg - 8228-8241
Gary W. Ott
Recorder, Salt Lake County, UT
FOUNDERS TITLE
BY: eCASH, DEPUTY - EF 14 P.

With a copy to:

_____
_____
_____

and

Division Director
Division of Environmental Response and Remediation
Utah Department of Environmental Quality
168 North 1950 West
P. O. Box 144840
Salt Lake City, UT 84114-4840

and

Regional Institutional Control Coordinator, EPR-SR
U.S. Environmental Protection Agency
1595 Wynkoop Street
Denver, CO 80202

ENVIRONMENTAL COVENANT

This Environmental Covenant is entered into by LaQuinta Corporation, the United Sates Environmental Protection Agency ("EPA") and the Utah Department of Environmental Quality ("DEQ") pursuant to Utah Code Arm. §§ 57-25-101 et seq. for the purpose of subjecting the Property described in paragraph 2 below to the activity and use limitations set forth herein.

The Property includes the location of the former Vermiculite Intennountain plant (the "Site"). The Vermiculite Intermountain plant operations included the exfoliation of vermiculite concentrate from the Libby Vermiculite Mine, located in Libby, Montana. The vermiculite concentrate contained amphibole asbestos. EPA has determined that the exfoliation process and handling of the vermiculite concentrate resulted in the release of elevated levels of amphibole asbestos into soils and air on the Property. This resulted in both exterior surface contamination and contamination inside specific buildings. Additional information is available in the Site files at DEQ and in the administrative record on file with EPA in Denver, Colorado.

In 2004-2005, PacifiCorp successfully undertook and performed an environmental response action, as defined in Utah Code Ann. § 57-25-102(5), at this or an adjacent property pursuant to a certain Administrative Order on Consent for Removal Action between EPA and PacifiCorp dated July 2004. This resulted in the removal of all known surface contamination from the properties known to have amphibole asbestos contamination. However, because some potentially contaminated subsurface soils, which exist at various depths as depicted on the accompanying plat map (Exhibit A), were left in place, DEQ, in conjunction with the EPA, has determined that the following Institutional Controls are necessary with respect to the Property.

Now, therefore, Owner, EPA, and DEQ agree to the following:

1. Environmental Covenant. This instrument is an environmental covenant developed and executed pursuant to Utah Code Ann. §§57-25-101 et seq.

2. Property. This Environmental Covenant concems property located at approximately the southwest comer of the intersection of 100 South Street and 300 West Street, in Salt Lake City, Salt Lake City County, Utah, comprising the parcel as more particularly described in Exhibit B attached hereto and hereby incorporated by reference herein ("Property").

3. Owner. LaQuinta Corporation is the owner of the Property. Consistent with numbered paragraph 6 herein, the obligations of the Owner are imposed on assigns and successors in interest, including any future owner of any interest in the Property or any portion thereof, including, but not limited to, owners of an interest in fee simple, mortgagees, easement holders, and/or lessees ("Transferee").

4. Holders. Owner, whose address is listed above is the "Holder" of this Environmental Covenant, as defined in Utah Code Ann. § 57-25-102(6).

5. Activity and Use Limitations. As part of the removal action described in the administrative record, Owner hereby imposes and agrees to comply with the following activity and use limitations:

Owner shall prevent the release of amphibole asbestos from undemeath soil caps and impermeable surfaces at the site. The Property is currently covered with a mixture of asphalt paved surface, cement surfaces and soil covers that is preventing emissions of amphibole asbestos from the Property. In areas where cleanup work has already been performed, there are both vertical and horizontal orange plastic barriers below the soil cap indicating potential areas of contamination. In other areas, there are no such warning devices. These covers, surfaces (the "cap") and warning devices must be maintained in good condition. If the cap or warning devices deteriorate in such a manner that amphibole asbestos might be released, then Owner must repair the warning devices and the cap.

If the cap is to be disturbed for any reason, Owner must protect workers, protect nearby receptors, and protect the removal action remedy by not introducing amphibole asbestos contamination into clean areas. The Owner must comply with the following:

a. Notification and Written Workplan – The Owner must notify DEQ and EPA in advance regarding any project which will disturb the cap. The Owner must submit a written workplan to DEQ and EPA describing the nature of the project and the work practices and engineering controls to be used to prevent emissions of amphibole asbestos. EPA and DEQ will coordinate to determine the appropriate level of govemment oversight and will notify the Owner which agency will be conducting oversight of the project. The Owner must receive written approval of the workplan from DEQ and EPA prior to beginning a project that will disturb the cap. In the event of any action or occurrence on or relating to the Property that constitutes an emergency situation or may present an immediate threat to public health or welfare or the environment prevents Owner from complying with the requirements of this paragraph, Owner shall notify EPA and DEQ of the situation and any responsive actions simultaneously with the identification of the emergency and determination of need for immediate action.

b. Existing Asbestos Regulations – The federal govemment and the State of Utah have regulations regarding asbestos worker certification and asbestos work practices. These rules generally apply to "asbestos containing material" ("ACM") which means any material containing more than one percent asbestos, according to the definition set forth in the regulations. Owner must address all releases of amphibole asbestos, even those below a 1% concentration. Any activity at the Property which disturbs the cap should be conducted, at a minimum, in compliance with the regulations. The Owner shall notify the Utah Division of Air Quality Asbestos Program of any asbestos-related work practices.

c. Worker Health and Safety – The U.S. Occupational Safety and Health Administration "OSHA") has regulations for workers exposed to asbestos, including permissible exposure limits ("PELs"), employee notification, monitoring methods, et c. T he OSHA regulations state that the employer shall ensure that no employee is exposed to an airbome concentration of asbestos in excess of 0.1 fibers per cubic centimeter of air as an eight (8) hour time-weighted average ("TWA") as determined by the method prescribed in the regulations. Any activity at the Site which triggers the OSHA regulations should be conducted in compliance with the regulations. Soils at the Site which contain detectable amphibole asbestos at trace levels less than 0.2 percent could generate airborne concentrations of amphibole asbestos that are potentially hazardous when disturbed. Owner is required to keep worker exposures to amphibole asbestos at the Site to an absolute minimum, even if OSHA regulations are not triggered. This includes requiring respiratory protection, employee training, engineering controls (e.g., wetting or containment), air monitoring, etc., if soils below a cap are to be disturbed, unless Owner can show, using EPA approved amphibole asbestos analytical methods, that the soils are non-detect for such asbestos.

d. Receptors near the Site – Owner must take steps to prevent or limit human exposure near the Site to amphibole asbestos during any activity that disturbs the cap. Any workplan for a proposed project should describe how this will be accomplished with activities including, but not limited to, engineering controls, EPA-approved

amphibole asbestos analytical methods, air monitoring, and restricting access to the Site.

e. Decontamination – The workplan should describe decontamination procedures and adequately delineate workzones and decontamination zones for any proposed project. Decontamination must be considered for workers, equipment, vehicles, or any other thing that enters into the work zone. The workplan should also address the collection and disposal of decontamination water.

f. Handling, Transport and Disposal – Any activity that may possibly disturb the amphibole asbestos that remains undemeath the cap must not re-contaminate the ground surface or nearby buildings, unless specifically approved in the workplan. Procedures must be established and described in the workplan for preventing emissions from any amphibole asbestos-contaminate soils as they are excavated and transported for disposal. Contaminated soils, clothing, and other amphibole asbestos-contaminate waste should be containerized and treated as ACM. The materials should be transported to, and disposed of, as ACM at a landfill permitted to receive ACM.

g. Experienced Workers – Any activity that will disturb the cap must be conducted by workers experienced with outdoor asbestos cleanups, preferably workers experienced in cleaning up amphibole asbestos contamination. Depending on the scope of the proposed project, utilizing inexperienced workers may be a cause for rejecting the workplan.

h. Owner shall pay DEQ for oversight and review in accordance with DEQ's fee schedule.

6. Running with the Land. This Environmental Covenant shall be binding upon the Owner and all assigns and successors in interest, including any Transferee, and shall mn with the land, pursuant to Utah Code Ann. § 57-25-105, subject to amendment or termination as set forth herein.

7. Compliance Enforcement. Compliance with this Environmental Covenant may be enforced pursuant to Utah Code Ann. § 57-25-111. Failure to timely enforce compliance with this Environmental Covenant or the activity and use limitations contained herein by any party shall not bar subsequent enforcement by such party and shall not be deemed a waiver of the party's right to take action to enforce any non-compliance. Nothing in this Environmental Covenant shall restrict the DEQ or EPA from exercising any authority under applicable law. This Environmental Covenant may also be enforced by EPA pursuant to the Administrative Order on Consent for Removal Action between EPA and Owner dated July 2004 and pursuant to 42 U.S.C. Section 101 et sea.

8. Rights of Access. Owner hereby grants to the DEQ and EPA, their respective agents, contractors, and employees, a right of access to the Property for implementation or enforcement of this Environmental Covenant. As to the PacifiCorp portion of the property, DEQ and EPA

recognize that the property contains very high voltage equipment and other hazards, including an electrical substation or other electrical infrastmcture. DEQ and EPA shall coordinate with Owner before entering any buildings or other restrict areas containing such electrical equipment on the Property, unless there is an emergency requiring immediate action by DEQ or EPA. Owner shall provide health and safety assistance to DEQ and EPA without charge.

9. Compliance Reporting. Upon request, Owner shall submit to the DEQ and EPA written verification of compliance with the activity and use limitations contained herein. In addition, Owner shall submit a status report on the condition of the cap to DEQ and EPA annually. If the Owner fails to do so, the DEQ and/or EPA may inspect and prepare a status report and recover its costs from the Owner.

10. Notice upon Conveyance. Each instrument hereafter conveying any interest in the Property or any portion of the Property shall contain a notice of the activity and use limitations set forth in this Environmental Covenant, and provide the recorded location of this Environmental Covenant. The notice shall be substantially in the following form:

> THE INTEREST CONVEYED HEREBY IS SUBJECT TO AN ENVIRONMENTAL COVENANT, DATED _____, 200__, RECORDED IN THE DEED OR OFFICIAL RECORDS OF THE COUNTY RECORDER ON _____, 200__, in document ____, or BOOK ____, PAGE ____]. THE ENVIRONMENTAL COVENANT CONTAINS THE FOLLOWIN ACTIVITY AND USE LIMITATIONS:
>
> Owner shall prevent the release of amphibole asbestos from undemeath soil caps and impermeable surfaces at the site. The property is currently covered with a mixture of asphalt paved surface, cement surfaces and soil covers that is preventing emissions of amphibole asbestos from the Property. In are as where cleanup work has already been performed, there are both vertical and horizontal orange plastic barriers below the soil cap indicating potential areas of contamination. In other areas, there are no such warning devices. These covers, surfaces (the "cap") and waming device must be maintained in good condition. If the cap deteriorates in such a manner that amphibole asbestos might be released, then Owner must repair the waming devices and the cap.
>
> If the cap must be disturbed for any reason, Owner must protect workers, protect nearby receptors, and protect the removal action remedy by not introducing amphibole asbestos contamination into clean areas. The Owner must comply with the following:
>
> a. Notification and Written Workplan – The Owner must notify DEQ and EPA in advance regarding any project which will disturb the cap. The Owner must submit a written workplan to DEQ and EPA describing the nature of the project and the work practices and engineering controls to be used to prevent emissions of amphibole asbestos. EPA and DEQ will coordinate to determine the appropriate level of govemment oversight and will notify the Owner which agency will be conducting oversight of the project. The Owner must receive written approval from DEQ and EPA prior to beginning a project that will disturb the cap. In the event of any action or occurrence on or relating to the Property

that constitutes an emergency situation or may present an immediate threat to public health or welfare or the environment prevents Owner trom complying with the requirements of this paragraph, Owner shall notify EPA and DEQ of the situation and any responsive actions simultaneously with the identification of the emergency and determination of need for immediate action.

b. Existing Asbestos Regulations – The federal govemment and the State of Utah have regulations regarding asbestos worker certification and asbestos work practices. These mles generally apply to "asbestos containing material" ("ACM") which means any material containing more than one percent asbestos, according to the definition set forth in the regulations. Owner must address all releases of amphibole asbestos, even those below a 1% concentration. Any activity at the Property which impacts the cap should be conducted, at a minimum in compliance with the regulations. The Owner shall notify the Utah Division of Air Quality Asbestos Program of any asbestos-related work practices.

c. Worker Health and Safety – the U.S. Occupational Safety and Health Administration ("OSHA") has regulations for workers exposed to asbestos, including permissible exposure limits ("PELs"), employee notification, monitoring methods, etc. The OSHA regulations state that the employer shall ensure that no employee is exposed to an airbome concentration of asbestos in excess of 0.1 fivers per cubic centimeter of air as an eight (8)-hour time-weighted average ("TWA") as determined by the method prescribed in the regulations. Any activity at the Site which triggers the OSHA regulations should be conducted in compliance with the regulations. Soils at the Site which contain detectable amphibole asbestos at trace levels less than 0.2 percent could generate airbome concentrations of amphibole asbestos that are potentially hazardous when disturbed. Owner is required to keep worker exposures to amphibole asbestos at the Site to an absolute minimum, even if the OSHA regulations are not triggered. This includes requiring respiratory protection, employee training, engineering controls (e.g., wetting or containment), air monitoring, etc., if soils below a cap are to be disturbed, unless Owner can show, using EPA-approved amphibole asbestos analytical methods, that the soils are non-detect for such asbestos.

d. Receptors near the Site – Owner must take steps to ensure that persons near the Site are not exposed to amphibole asbestos during any activity that disturbs the cap. Any workplan for a proposed project should describe how this will be accomplished with activities including, but not limited to, engineering controls, EPA-approved amphibole asbestos analytical methods, air monitoring, and restricting access to the Site.

e. Decontamination – The workplan should describe decontamination procedures and adequately delineate workzones and decontamination zones for any proposed project. Decontamination must be considered for workers, equipment, vehicles, or any other thing that enters into the work zone. The workplan should also address the collection and disposal of decontamination water.

f. Handling, Transport, and Disposal – Any activity that may possibly disturb the amphibole asbestos that remains undemeath the cap must not re-contaminate the ground surface or nearby buildings. Procedures must be established and described in the workplan for preventing emissions trom any amphibole asbestos-contaminated soils as they are excavated and transported for disposal. Contaminated soils, clothing, and other amphibole asbestos-contaminated waste should be containerized and treated as ACM. The materials should be transported to, and disposed of, as ACM at a landfill permitted to receive ACM.

g. Experienced Workers – Any activity that will disturb the cap must be conducted by workers experienced with outdoor asbestos cleanups, preferably workers experienced in cleaning up amphibole asbestos contamination. Depending on the scope of the proposed project, utilizing inexperienced workers may be a cause for rejecting the workplan.

h. Owner shall pay DEQ for oversight and review in accordance with DEQ's fee schedule.

Owner shall notify the DEQ and EPA within 20 days after any conveyance of an interest in any portion of the Property. Owner's notice shall include the name, address and telephone number of the Transferee, a copy of the deed or other documentation evidencing the conveyance, and an un-surveyed plat that shows the boundaries of the property being transferred.

11. Representations and Warranties. Owner hereby represents and warrants to the other signatories hereto:

A. that the Owner is the sole owner of the Property;

B. that the Owner holds title to the Property;

C. that the Owner has the power and authority to enter into this Environmental Covenant, to grant the rights and interests herein provided and to carry out all obligations hereunder;

D. that the Owner has identified all other persons that own an interest in or hold an encumbrance on the Property and notified such persons of the Owner's intention to enter into this Environmental Covenant; and

E. that this Environmental Covenant will not materially violate or contravene or constitute a material default under any other agreement, document or instrument to which Owner is a party or by which Owner may be bound or affected;

12. Amendment or Termination. This Environmental Covenant may be amended or terminated only by a written instrument duly executed by all of the following: the Owner or Transferee, EPA and DEQ, pursuant to Utah Code Ann. §57-25-110 and other applicable law.

The term, "Amendment," as used in this Environmental Covenant, shall mean any changes to the Environmental Covenant, including the activity and use limitations set forth herein, or the elimination of one or more activity and use limitations when there is at least one limitation remaining. The term, "Termination," as used in this Environmental Covenant, shall mean the elimination of all activity and use limitations set forth herein and all other obligations under this Environmental Covenant. Within thirty (30) days of signature by all requisite parties on any amendment or termination of this Environmental Covenant, the Owner shall file such instrument for recording with the Salt Lake County Recorder's Office, and shall provide a file and date-stamped copy of the recorded instrument to DEQ.

13. Severability. If any provision of this Environmental Covenant is found to be unenforceable in any respect, the validity, legality, and enforceability of the remaining provisions shall not in any way be affected or impaired.

14. Governing Law. This Environmental Covenant shall be governed by and interpreted in accordance with the laws of the State of Utah.

15. Recordation. Within thirty (30) days after the date of the final required signature upon this Environmental Covenant, Owner[s] shall file this Environmental Covenant for recording, in the same manner as a deed to the Property, with the Salt Lake County Recorder's Office.

16. Effective Date. The effective date of this Environmental Covenant shall be the date upon which the fully executed Environmental Covenant has been recorded as a document of record for the Property with the Salt Lake County Recorder.

17. Distribution of Environmental Covenant. The Owner shall distribute a file and date-stamped copy of the recorded Environmental Covenant to DEQ, EPA and the Salt Lake City Mayor's Office.

18. Notice. Unless otherwise nodfied in writing by or on behalf of the current owner, EPA or DEQ, any document or communication required by this Environmental Covenant shall be submitted to:

DEQ

Project Manager, Vermiculite Intermountain Site
Division of Environmental Response and Remediation
DEQ
P.O. Box 144840
Salt Lake City, Utah 84114-4840

EPA

Regional Institutional Control Coordinator, EPR-SR
U.S. EPA
1595 Wynkoop Street
Denver, CO 80202

Owner

LaQuinta Corporation
c/o Ellison Stollenwerck
900 Hidden Ridge, Suite 600
Irving, TX 75038

The undersigned representative of Owner represents and certifies that s(he) is authorized to execute this Environmental Covenant.

IT IS SO AGREED:

Signature of Owner[s]

MARK CHLOUPEK Vice President
Printed Name and Title

7/13/07
Date

State of Texas)
) ss:
County of Dallas)

Before me, a notary public, in and for said county and state, personally appeared Mark Chloupek, a duly authorized representative of La Quinta Corporation, who acknowledged to me that [he/she] did execute the foregoing instrument on behalf of La Quinta Corporation

IN TESTIMONY WHEREOF, I have subscribed my name and affixed my official seal this 13 day of July 2007

Notary Public

ELLISON STOLLENWERCK
Notary Public, State of Texas
My Commission Expires
July 24, 2010

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Michael T. Risner, Director
Legal Enforcement Program

12/13/07
Date

Sharon L. Kercher, Director
Technical Enforcement Program

13 December 2007
Date

State of Colorado)
) ss:
County of Denver)

Before me, a notary public, in and for said county and state, personally appeared Michael T. Risner and Sharon L. Kercher, Directors respectively of Legal Enforcement and Technical Enforcement at the United States Environmental Protection Agency, who acknowledged to me that they did execute the foregoing instrument.

IN TESTIMONY WHEREOF, I have subscribed my name and affixed my official seal this 13 day of December, 2007.

Notary Public

Commission Exp 9/30/2011

UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY

The Utah Department of Environmental Quality authorized representative identified below hereby approves the foregoing Environmental Covenant pursuant to Utah Code Sections 57-25-102(2) and 57-25-104(1)(e).

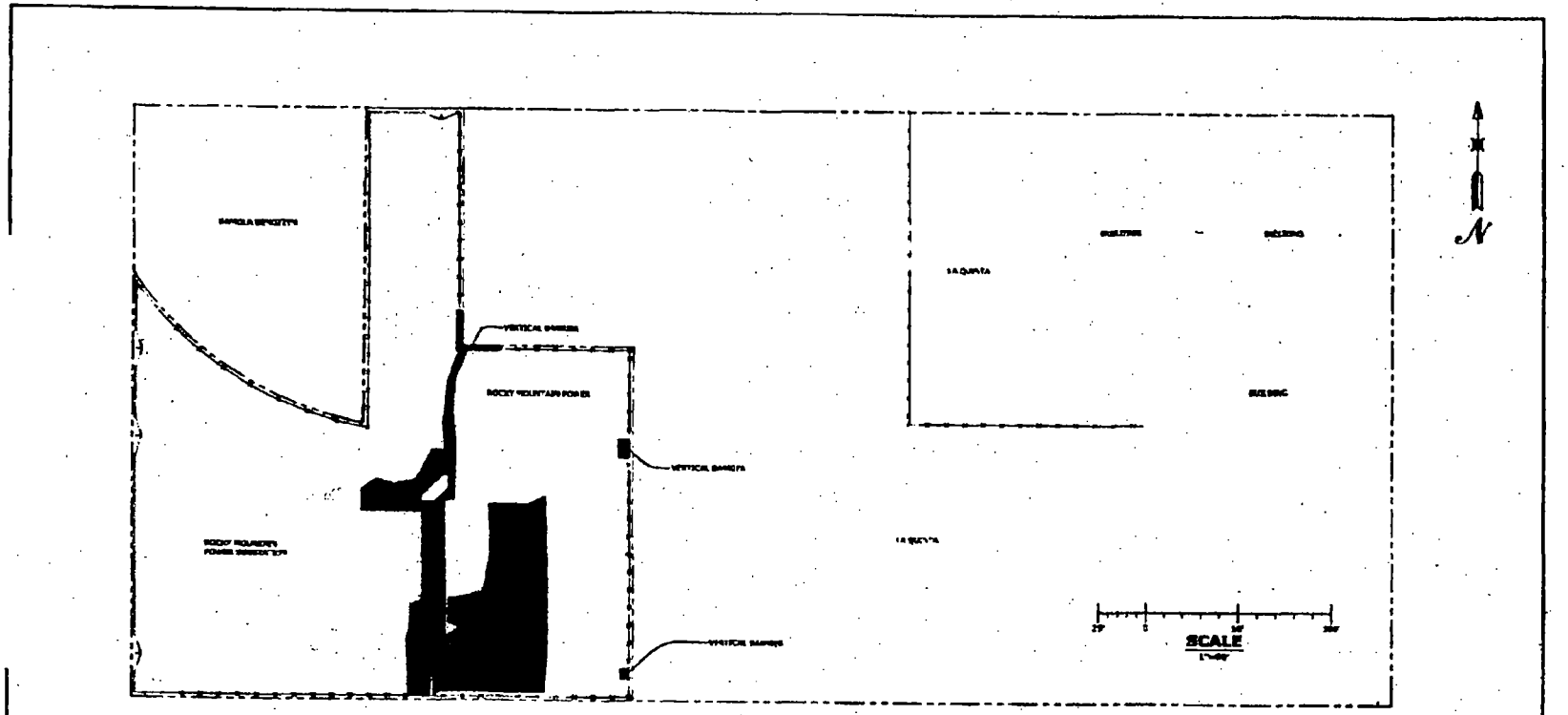
By: Brad T Johnson
Name: Brad T Johnson
Title: Director, Division of Environmental Response and Remediation, Utah Department of Environmental Quality

STATE OF UTAH)
) ss.
County of Salt Lake)

Before me, a notary public, in and for said county and state, personally appeared Brad T Johnson, an authorized representative of the Utah Department of Environmental quality, who acknowledged to me that he did execute the foregoing instrument this 28 day of January, 2008.

NOTARY PUBLIC
JENNIFER BURGE
140 East 300 South
Salt Lake City, Utah 84111
My Commission Expires
September 11, 2008
STATE OF UTAH

Jennifer Burge
Notary Public
My Commission expires: 9-11-08



LEGEND

PROPERTY BOUNDARY

AREA COVERED WITH BARRIER

0	04/21/07	M. EMETT	RIO WEST SUBSTATION
			SALT LAKE CITY, UT
7010		M. EMETT	REMEDIATION PROJECT
PACIFICORP		T. HENRIE	LOCATION BEARING
EEC		1"=50'	781001.DWG — 1 OF 1

LEGAL DESCRIPTION
EXHIBIT "A"

Parcel 1:

Beginning at a point 10 feet East from the Northwest corner of Lot 6, Block 66, Plat "A" Salt Lake City Survey; thence South 220 feet to North face of concrete foundation wall; thence West along North face of said wall and wall produced 7.7 feet; thence Southerly along the West face of said concrete wall and wall produced 75.95 feet to a point 4 feet North from the North facing of a 13.75 foot outside diameter concrete smokestack; thence West 5.81 feet to a point 4 feet West from the West face of said smokestack; thence South 34.05 feet to South boundary line of Lot 5, Block 66, thence East 498.51 feet to the Southeast corner of Lot 8, said block 66, thence North 156.75 feet, thence West 165 feet, thence North 8.25 feet, thence West 82.5 feet, thence North 165 feet, thence West 237.5 feet to the point of beginning.

Less and excepting therefrom that portion conveyed to Utah Power and Light Company, a Utah Corporation organized and existing under the laws of that State of Utah, as disclosed by that certain Warranty Deed recorded June 25, 1984 as Entry No. 3959294 in Book 5567 at Page 2324, Salt Lake County Recorder's Office, being more particularly described as follows:

Beginning at a point which is North 89°58'22" East 10.0 feet and South 00°02'07" East 132.02 feet from the Northwest corner of Lot 6, Block 66, Plat "A" Salt Lake City Survey; said point of beginning also being North 89°58'22" East along the city monument line 243.29 feet and South 0°02'07" East 199.46 feet from the city monument at the intersection of 100 South Street and 400 West Street; thence running South 0°02'07" East 88.02 feet; thence South 89°58'22" West 7.70 feet; thence South 0°02'07" East 75.97 feet; thence South 89°58'22" West 5.81 feet; thence South 0°02'07" East 34.06 feet to a point on the South line of said Lot 5, thence North 89°58'22" East along the South line of said Lot 5 and 6, 106.38 feet to a point which is 14.90 feet South of the Southeast corner of an existing building; thence North 0°25'13" West along the East face of said building line projected, 198.05 feet; thence South 89°58'22" West 91.54 feet to the point of beginning.

Parcel 2:

Beginning at a point 243.52 feet North 89°58'21" East and 67.44 feet South 00°01'39" East and 485.28 feet North 89°58'20" East from the Salt Lake City Survey Monument found at the intersection of 100 South and 400 West Streets, said point being the Northeast corner of Lot 8, Block 66, Plat A, Salt Lake City Survey, and running thence South 00°03'19" East 173.25 feet; thence South 89°58'20" West 165.00 feet; thence North 00°03'19" West 8.25 feet; thence South89°58'20" West 82.5 feet; thence North 00°03'19" West 165.00 feet; thence North 89°58'20" East 247.50 feet to the point of beginning.
The following is shown for information purposes only: Tax ID No. 15-01-129-026

Appendix C
Warehouse Building Asbestos Report

Asbestos Abatement in Bids Required.
Add. Hand Abatement in Bids Required.
$ 60,000 in Abatement.

A Pre-demolition Asbestos Survey and Assessment and Hazardous Materials Inspection at the Former Frank Edwards Company Building 100 South 300 West Salt Lake City, Utah

April 30, 2007

Submitted To:

Mr. Richard Gordon
Attorney-At-Law
Westgate Property Investments, LLC
180 South 300 West, Suite 120
Salt Lake City, Utah 84101

Prepared By:
IHI Environmental
640 E. Wilmington Ave.
Salt Lake City, Utah 84106
Phone: (801) 466-2223
Fax: (801) 466-9616

IHI Project 07A-1071

Table of Contents

Appendices

A Pre-demolition Asbestos Survey and Assessment and Hazardous Materials Inspection at the Former Frank Edwards Company Building 100 South 300 West Salt Lake City, Utah

Executive Summary

A Pre-demolition Asbestos Survey and Assessment and Hazardous Materials Inspection were conducted at the former Frank Edwards Company building on April 17, 2007. Bulk samples were collected from suspect asbestos materials and analyzed to determine if they contained asbestos. Other hazardous materials, as prescribed by the Salt Lake Valley Health Department, were also identified. Mr. Richard Gordon, of Westgate Property Investments, LLC, requested this asbestos survey and inspection.

Amounts of asbestos-containing materials (ACMs) identified in this survey and estimated removal costs for these materials by a certified asbestos contractor are presented in the following table. These estimates include only asbestos removal costs; abatement design and management fees are not included. The estimated removal cost for all of the ACMs in the building is **$ 48,664.**

The cost for a certified asbestos contractor to remove, package, transport and dispose of the other hazardous materials in the facility, as prescribed by the Salt Lake Valley Health Department, is approximately **$ 9,842**.

There is important information contained in the body and appendices of this report that is not included in this executive summary. In addition to discussions of governing regulations and IHI standard survey and analysis procedures, there is specific information for this building regarding suspect asbestos materials evaluated and those that were not evaluated or sampled because they were excluded or inaccessible at the time this survey was conducted. It is therefore recommended that this report be read in its entirety.

Executive Summary

Asbestos-containing Materials by Homogeneous Area

Frank Edwards Company Building

IHI Project #07A-1071

Homogeneous Area Number	Material Description/Location	Asbestos Content	Amount	Cost Estimate(1)
M003	Floor tile and mastic - 9" Tan & Brown with black mastic N. office and N. restroom	10% Chrysotile (tile) ND (mastic)	470 sq. ft.	$1,800
M005B	Wall System - Gypsum board, tape & joint compound S. restroom and wall outside S. restroom	1.2% Chrysotile - joint comp. 2.2% by PC	400 sq. ft.	$916
M011	Built-up Roofs, multi-layer/sq.ft. - White rocks on top & green rocks lower layer Entire S. arched roof area, under sealed rubber membrane roofing material	5% Chrysotile	7,500 sq. ft.	$42,600
M013	Roof Sealant (up to 12" wide). - Black tar sealant, somewhat weather gray Perimeter flashing and around penetrations of of S. arched roof	15% Chrysotile	300 ln. ft.	$2,190
M016	Roof Sealant (up to 12" wide). - Black tar sealant, somewhat weather gray Perimeter flashing and around four penetrations on W. flat roof	15% Chrysotile	150 ln. ft.	$1,095
M020	Light Fixture - Wire Insulation - Off-white fibrous insulation on outside of light fixture wiring (3) 14-inch round light fixtures in restroom areas.	Assumed	3 units	$63

Note 1: Cost Estimates include asbestos removal costs only; abatement design, management fees and replacement costs are not included. Please refer to Section 6.0 for more details.

A Pre-demolition Asbestos Survey and Assessment And Hazardous Materials Inspection at Former Frank Edwards Company Building 100 South 300 West Sait Lake City, Utah

1.0 INTRODUCTION

A comprehensive asbestos survey and assessment was conducted at the former Frank Edwards Company building on April 17, 2007. The purpose of this survey was to identify the existence, extent, and condition of both friable and non-friable asbestos-containing materials (ACM). Bulk samples were collected from suspect materials and analyzed for asbestos content. Each occurrence of ACM was assessed for friability and condition.

The following accredited inspector performed the inspection, collected the samples, and made the assessments:

John Murphy — April 30, 2007
Date

John Murphy
State of Utah Asbestos Inspector
Certification No. ASB-1117
Salt Lake Valley Health Department
Pre-demolition Inspector Certification No. PBI-014

This report was reviewed by:

Jon H. Self — April 30, 2007
Date

Jon H. Self
Asbestos Program Manager

2.0 BUILDING DESCRIPTION

Building Identification

Building Name	Former Frank Edwards Company Building
Building Address	100 South 300 West Salt Lake City, Utah

Building Construction

Building Construction Date	Pre 1962
Building Type	Warehouse and office space
Building Total Sq. Ft.	~28,000 sq. ft.
Structural System	Brick and concrete block
Exterior Wall Construction	Stucco, brick, and concrete block
Floor Deck Construction	Concrete
Roof Deck Construction	Wood
Roof Construction	Built-up asphalt roof with gravel and rubber membrane

Floors

Floors Above Grade	One (plus a small loft area above N. restrooms)
Floors Below Grade	None

Interior Finishes

Floors	Concrete, vinyl floor tile and vinyl floor sheeting
Walls	Gypsum board wall system, gypsum board, wood paneling, plywood
Attic	None (fibrous glass insulation under roof deck)

Building Mechanical

Heating and Cooling Plant	Gas-fired forced air heating units inside building. Two roof mounted evaporative cooling units.
Main Heating Distribution:	Ducted supply from heating units to office areas and individual ceiling mounted units in warehouse areas.

3.0 SURVEY PROCEDURES

3.1 Building Survey

All accessible areas of the facility were visually inspected to identify suspect asbestos containing materials (ACM.) All accessible surfaces, structures, and mechanical systems within these areas were examined and all suspected ACM was touched to determine friability.

Suspect ACM was identified and assessed in homogeneous areas. A homogeneous area is defined as a single material, uniform in texture and appearance, installed at one time, and unlikely to consist of more than one type, or formulation, of material. In cases where joint compound and/or tape has been applied to wallboard (gypsum board) and cannot be visually distinguished from the wallboard, it is considered an integral part of the wallboard and in effect becomes one material forming a wall or ceiling "system."

Each homogeneous area was given a unique material identification number. Each ID number begins with a letter: "S" for surfacing materials, "T" for thermal system insulation, or "M" for miscellaneous materials. A three-digit number, assigned in consecutive order, follows this letter. This number is used to identify the homogeneous area throughout the inspection report.

3.2 Bulk Sample Collection

Bulk samples were collected from all accessible homogeneous areas of suspect ACM for subsequent laboratory analysis to determine actual asbestos content. Sampling was conducted in a manner that minimized damage to the building, did not leave any unsightly marks, and did not create a health hazard for the inspectors.

The number of samples collected from each homogeneous area generally followed the EPA AHERA regulations (40 CFR §763.86). Friable surfacing materials were sampled using the random sampling scheme given in the EPA publication 560/5-85-030a, titled "Asbestos in Buildings: Simplified Sampling Scheme for Friable Surfacing Materials."

3.3 Bulk Sample Analysis

Bulk samples were analyzed using polarized light microscopy (PLM) and visual estimation in accordance with the EPA Interim Method for the Determination of Asbestos in Bulk Insulation Samples, EPA-600/M4-82-020. Dixon Information Inc., 78 West 2400 South, Salt Lake City, Utah 84115 analyzed all samples. Dixon is accredited under the National Institute of Standards and Technology - National Voluntary Laboratory Accreditation Program (NIST-NVLAP) for bulk-asbestos sample analysis and is also accredited by the American Industrial Hygiene Association (AIHA.)

Federal EPA's NESHAP and AHERA regulations as well as OSHA define ACM as material containing greater than 1% asbestos by weight. Materials containing 1% or less asbestos are not considered regulated ACM by EPA; however, OSHA may regulate materials containing any detectable level of asbestos to some degree.

Further, the NESHAP regulations state that any sample found to contain less than 10% asbestos but greater than "none detected," by visual estimation, must be assumed to contain greater than 1% asbestos unless confirmed to be 1.0% or less asbestos by point counting analysis. All samples found to contain asbestos in the range between greater than 1% and 10% by standard PLM analysis were assumed in this report to contain greater than 1% asbestos. For homogenous areas where all of the samples were reported as greater than None Detected but equal to or less than 1% asbestos, samples were point counted until one of the samples exceeded 1% or all were found to be 1% or less. In the case of layered samples, such as gypsum board wall systems and floor tile and mastic, where positive layers were detected, analysis results of the individual layers are evaluated and reported. The laboratory reports can be found in Appendix B of this report.

4.0 SURVEY RESULTS

4.1 Asbestos-Containing Materials

Homogeneous areas of suspect ACM are identified as being ACM if the laboratory analysis shows the material to contain any detectable asbestos, unless subsequent point count analysis resulted in 1.0% or less asbestos being detected. The Executive Summary and Table 1 in Appendix A both list all homogeneous areas that were found to be ACM. Each material is described by type of material, friability and visual appearance.

Friability is defined in accordance with EPA's NESHAP regulations.

"Friable ACM" is any material containing more than 1% asbestos (as determined by PLM) that, when dry, may be crumbled, pulverized, or reduced to powder by hand pressure and also includes non-friable ACM that may become friable during building demohtion.

"Non-friable ACM" is any material containing more than 1% asbestos (as determined by PLM) that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

"Category I non-friable ACM" are asbestos-containing resilient floor coverings (commonly known as vinyl asbestos tile (VAT)), asphalt roofing products, packings, and gaskets.

"Category II non-friable ACM" encompasses all other non-friable ACM.

"Regulated Asbestos-Containing Material" (RACM) is (a) friable asbestos material, (b) Category I non-friable ACM that has become friable, (c) Category I non-friable ACM that will be or has been subjected to sanding, grinding, cutting or abrading, or (d) Category II non-friable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations.

Note: In accordance with OSHA guidelines and IHI policy, when a layer within a gypsum board wall system tests positive for asbestos, that layer is evaluated independently from the rest of the sample. Consequently, a sample of gypsum board wall system with asbestos only in the joint compound layer would likely be analyzed as a non-ACM using EPA-recommended composite analysis and be analyzed as an ACM (or containing measurable asbestos capable of producing airborne asbestos concentrations greater than the OSHA Permissible Exposure Level) following OSHA guidelines because the asbestos layer is evaluated independently. Please see Section 5 of this report for further discussion of this matter.

4.2 Non-Asbestos-Containing Materials

Homogeneous areas of suspect ACM are identified as *non*-ACM if the laboratory analysis shows the material to contain asbestos in concentrations between None Detected up to and including 1%. Where results of the initial PLM analysis were in the range between above None Detected up to and including 1%, point counting was used to confirm that asbestos concentrations did not exceed 1%. Table 2, located in Appendix A of this report, lists all homogeneous areas that were found to be non-ACM.

4.3 Bulk Sample Analytical Results

Table 3, located in Appendix A of this report, lists all of the bulk samples (in order by sample number) that were collected from homogeneous areas of suspect ACM, along with the laboratory analytical results. Each sample was given a unique sample number. There may be more than one sample number for the same homogeneous area of suspect ACM. The homogeneous areas of suspect ACM are identified in this table under the EPA AHERA material categories of Miscellaneous (M##), Thermal System Insulation (T##), and Surfacing (S##) with sequential homogeneous area numbers being assigned within each category. The sample locations listed on this table provide brief, but specific, descriptions of the locations where each of the samples was collected. This is different from the homogeneous area locations provided in Tables 1 and 2 that describe all of the locations where that homogeneous area material are located. Table 4 is the same as Table 3 except that the entries have been sorted by homogeneous area number.

4.4 Damage and Hazard Assessment

Each homogeneous area of ACM has been assessed for existing damage, accessibility, and potential for future damage, and this information is presented in Table 5, located in Appendix A of this report. This table also lists the substrate present beneath each homogeneous area of ACM.

Each homogeneous area of ACM and asbestos-containing building material (ACBM) was classified into one of the following seven categories, as specified in EPA's AHERA regulations (40 CFR §763.88):

(1) Damaged or significantly damaged thermal system insulation ACM.
(2) Damaged friable surfacing ACM.
(3) Significantly damaged friable surfacing ACM.
(4) Damaged or significantly damaged friable miscellaneous ACM.

(5) ACBM with potential for damage.
(6) ACBM with potential for significant damage.
(7) Any remaining friable ACBM or friable suspected ACBM.
(X) Not applicable (material is non-friable).

The damage categories are defined as follows:

"Undamaged" means the material had no visible damage, or extremely minor damage or surface marring (i.e., a room full of floor tile with only two or three small corners chipped off of the tile).

"Slight Damage" means the material had visible damage evenly distributed over less than 10% of its surface, or localized over less than 25% of its surface.

"Significantly Damaged" means the material had visible damage that is evenly distributed over 10% or more of its surface, or localized over 25% or more of its surface.

Each homogeneous area of ACM was evaluated for accessibility to the building occupants and the general public, assuming the building was fully occupied, using the following assessment categories.

"Inaccessible" means the material was located in an area that people had no reason to enter and could not access without special measures. One example would be above a solid ceiling.

"Rarely Accessed" identifies a material that was in a location that could be accessed but wasn't unless there was a specific need. An example would be a pipe tunnel. Another example would be a high ceihng that is out of reach and not subject to any specific disturbances.

"Periodic Access" identifies a material that was in a location that was accessible, was not occupied full tune, but was accessed on a routine basis. An example would be a mechanical room or boiler room.

"Continuous Access" identifies a material that was in a location that was occupied full time and was within reach of the occupants, or was frequently subject to direct disturbance. Examples would be exposed floor tile or a normal height ceiling.

4.5 Homogeneous Areas with Special Considerations

All Homogeneous areas identified in this inspection are categorized in accordance with EPA's NESHAP regulations as "Category II non-friable ACM" and all are in good condition. However, all materials identified have some probability of becoming friable during renovation or demolition activities and as such, consideration should be given to classifying these materials as Friable ACMs. In addition, in complying with OSHA guidehnes, disturbance of Category II non-friable ACM must be treated as OSHA Classified Asbestos Work. A graphical representation of the location of all identified material can be found on the attached floor plans provided in Appendix C. Also, pictorial

representation of each homogeneous material evaluated is presented in the Photo Log provided in Appendix D.

See paragraph 5.2 for further discussion of OSHA requirements.

4.6 Assumed Asbestos-Containing Materials

3 - 14" Round light fixtures, homogeneous area M020 were assumed to have ACM wire insulation. This material was not sampled for safety reasons, but has been known to contain up to 65% Chrysotile asbestos, and is easily recognized by sight

4.7 Inaccessible Areas

None

4.8 Material(s) assumed to contain >1.0% asbestos without subsequent TEM or Point Count Analysis

Floor tile: M003

Built-up roofing material: M011

Roofing tar sealants: M013 and M016

5.0 Response Action Comments

5.1 EPA Requirements

The Environmental Protection Agency (EPA) under the authority of the Clean Air Act regulates asbestos as a hazardous air pollutant. The asbestos regulations are included in the National Emissions Standards for Hazardous Air Pollutants (NESHAPS) and are referenced as 40 CFR 61, Subpart M. ACMs identified in this report are subject to those regulations. Those regulations, and state and local regulations, should be carefully examined prior to renovation, demolition, cleanup, or any other activity, which could disturb the ACMs, to ensure that all activities are in compliance with applicable requirements.

ACM is defined by the EPA, as any material containing greater than one percent of asbestos. ACMs are categorized as being either friable or non-friable. Friable ACMs are those materials that can be easily crumbled, pulverized, or otherwise broken up using hand or finger pressure when dry, and are materials considered more likely to produce airborne asbestos fibers. Non-friable ACMs are materials that do not meet the above test, and are considered less likely to produce airborne asbestos fibers. Non-friable ACMs are further categorized into Category I non-friable ACM (packings, gaskets, resilient floor coverings, and asphalt roofing products) and Category II non-friable ACM (materials not included in Category I).

Not all ACMs are regulated under NESHAPS. Regulated ACM (RACM) means (a) Friable asbestos material, (b) Category I non-friable ACM that has become friable, (c) Category I non-friable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading, or (d) Category II non-friable ACM that has a high probability of

becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of regulated demolition or renovation operations. Regulated demolition and renovation operations are those where the quantity of ACM affected is 260 linear feet or more on pipes, 160 square feet or more on other components, or 35 cubic feet or more in volume. There are certain notification requirements for demolition projects involving less than the above quantities.

Briefly, the EPA requires that RACM be removed from facilities scheduled for demolition or renovation before any activity begins that would break up, dislodge, or similarly disturb the materials or preclude access to the materials for subsequent removal. Category I non-friable ACM that is not in poor condition and is not friable does not have to be removed prior to demolition of a facility. However, these materials are exempt from mandatory removal only during demolition, not renovation. Removal is mandated when renovation activities are expected to disturb these ACMs and render them friable. Category II non-friable ACM also does not have to be removed prior to demolition if the probability is low that the material will become crumbled, pulverized, or reduced to powder (made friable) during demolition. However, state regulations may require the removal of these materials. Additionally, Category I non-friable ACM that has not become crumbled, pulverized, or reduced to powder during demolition activities may be disposed of as ordinary construction waste. Attention is directed to the OSHA requirements outlined below since they differ in several respects from the EPA requirements discussed above.

In any situation where ACM remains in a building, it should be managed under a comprehensive operations and maintenance program (O&M). The procedures and guidelines described in an O&M program should be followed whenever building maintenance activities may disturb any ACMs present in the building.

5.2 OSHA Requirements

Both the OSHA General Industry Regulation and Construction Industry Regulation, (29 CFR 1910.1001) and (CFR 1926.1101) respectively, define an *asbestos-containing material* (ACM) as any material containing more than 1% asbestos. However, unlike the EPA and Utah Division of Air Quality Asbestos Regulations that apply only when asbestos concentrations exceed 1% asbestos, certain OSHA regulations and requirements are applicable whenever the concentration of asbestos in a material is greater than "None detected". Furthermore, in the analysis of asbestos layered materials, such as gypsum board wall systems, EPA recommends combining the layers into a single composite sample. Under the EPA composite sample procedure the "overall" wall system asbestos concentration will seldom if ever exceed 1% as long as the sample is representative of the entire wall system and the only asbestos is in the joint compound layer. As long as the overall asbestos concentration in a gypsum board wall system does not exceed 1%, EPA considers disturbance of this material to be an unregulated activity. Note: If the joint compound contains more than 1% asbestos and covers all or most of the wall system surface, it is then considered a surfacing material and not part of the wall system and is regulated under EPA guidelines.

In contrast to the EPA recommendation to combine layers into a single sample, OSHA directs that each layer of the sample be analyzed independently and treated as a separate material. Consequently, even when only the joint compound layer in a gypsum board wall system contains asbestos in any concentration, specific OSHA-mandated work practices and precautions are required depending on the concentration of asbestos and the extent of joint compound on the wall system surface.

- If a >1% asbestos joint compound layer of a gypsum board wall system is the only asbestos in the wall system and the joint compound layer covers more than just joints and nail holes, a disturbance of this material is an OSHA Asbestos Class I Operation.
- If a >1% asbestos joint compound layer of a gypsum board wall system is the only asbestos in the wall system and the joint compound layer covers only the joints and nail holes, a disturbance of this material is an OSHA Asbestos Class II Operation.
- If a >None Detected but equal to or less than 1% asbestos joint compound layer of gypsum board wall system is the only asbestos in the wall system, a disturbance of this material is an OSHA Asbestos Unclassified Operation.

Another difference between EPA and OSHA regulations is found in the area of disturbance of asbestos-containing floor tile and floor tile mastic. Under EPA/DAQ regulations disturbance of asbestos-containing floor tile and floor tile mastic is an unregulated activity, unless the floor tile and/or mastic is rendered or could be rendered friable. Consequentiy, asbestos-containing floor tile and/or floor tile mastic can potentially be left in place in a building during demolition as long as friability is not an issue.

Please refer to the OSHA General Industry and Construction Industry Regulations for descriptions of the specific requirements for OSHA Asbestos Class I, II, and Unclassified Operations.

5.3 Renovation Options

A listing of asbestos-containing materials found during this survey is presented in the Executive Summary presented in the front of this report, and in Appendix A, Table 1.

All ACMs in the building are not currently classified as friable; however, renovations or demolition of these materials may cause them to become friable. NESHAP regulations require the removal of friable ACM and non-friable ACM that could become friable during renovation or demolition activities. Therefore, we recommend that all of the ACMs in this building be removed and properly disposed of by a licensed asbestos abatement contractor before renovation or demolition activities begin which have the potential of disturbing areas where these materials are located. While this recommendation may be overly conservative from an EPA perspective, it conforms to the OSHA Construction Industry Asbestos Standard (29 CFR 1926.1101) and will help protect workers on the site from potential asbestos exposure and the owner from liability exposure.

Materials Requiring Abatement

The following table shows all materials in the facility and the corresponding agency that regulates their removal. Friable materials found to be ACMs are required to be removed prior to demolition of the facility. Other materials classified as non-friable ACMs (except Transite™) are not required to be removed by EPA regulations as long as the demolition process will not render these materials friable. Prohibited demolition procedures include burning, grinding, sawing, etc. However, these same materials are given special consideration and classification in the OSHA regulations and will need to be handled in accordance with appropriate Class II or Unclassified work practices and proper training.

Type of ACM	% Asbestos	Amount	Regulated by EPA / OSHA	
9" Tan & brown floor tile	10% Chrysotile	470 sq. ft.		OSHA Class II
Wall system joint compound	1.2 – 2.2% Chrysotile	400 sq. ft.		OSHA Class II
Built-up roofing	5% Chrysotile	7,500 sq. ft.		OSHA Class II
Roof tar sealant	15% Chrysotile	450 ln. ft.		OSHA Class II
Light fixture wire insulation	Assumed asbestos	3 units.		OSHA Class II

6.0 COST ESTIMATES

A breakdown of the estimated removal costs by homogeneous area can be found in the Table 6, Appendix A. These cost estimates are provided for use in long-term budgeting and planning only, and do not have a level of accuracy sufficient to be used as a construction design cost estimate. The actual cost of asbestos removal is highly dependent on a number of factors such as the size of the job, the required time frame for removal, the time of year the job is conducted, the regulatory climate at the time, etc., therefore, actual abatement costs could vary significantly from these estimates. Replacement costs have not been included in these figures.

The cost for abatement design and management services is not included in these figures. These additional fees can range from 15% of the estimated abatement costs for large projects to greater than 50% for very small projects. The design and managment fees cover the cost of preparing plans and specifications, conducting the bidding process as well as third-party oversight during abatement.

7.0 LIMITATIONS AND EXCLUSION OF WARRANTY

This asbestos survey and assessment was performed using procedures and a level of diligence typically exercised by professional consultants perfonning similar services. However, asbestos-containing material (ACM) can be present in a structure, but not identified using ordinary investigative procedures.

No asbestos survey can completely eliminate uncertainty regarding the presence of ACM. IHI's level of diligence and investigative procedures are intended to reduce, but not eliminate, potential uncertainty regarding the presence of ACM. The procedures used for this survey attempt to establish a balance between the competing goals of limiting investigative costs, time, and building damage, and reducing the uncertainty about unknown conditions. Therefore, the determinations in this report should not be construed as a guarantee that all ACM present in the subject property has been included in this report.

This report presents IHI's professional determinations, which are dependent upon information obtained during performance of consulting services. IHI assumes no responsibility for omissions or errors resulting from inaccurate information provided by sources outside of IHI.

No warranty or guarantee, expressed or implied, is made regarding the findings, conclusions, or recommendations contained in this report. The limitations presented above supersede the requirements or provisions of all other contracts or scopes of work, unplied or otherwise, except those stated or acknowledged herein.

Appendix A

Data Tables

Table 1

Asbestos-containing Materials by Homogeneous Area

Frank Edwards Company Building

IHI Project #07A-1071

Homogeneons Area Number	Material Description/Location	Friability	Asbestos Content	Amount
M003	Floor tile and mastic 9" Tan & Brown with black mastic N. office and N. restroom	Category 1 Non-friable	10% Chrysotile (tile) (mastic) ND	470 sq. ft.
	Mastic is non-asbestos. *Tile is also present underneath non-ACM tile (M003) in N. restroom.*			
M005B	Wall System Gypsum board, tape & joint compound S. restroom and wall outside S. restroom	Category 2 Non-friable	1.2% Chrysotile - joint comp. 2.2% by PC	400 sq. ft.
	Asbestos containing portion of wall system is in the joint compound on seams of finished walls in S. restroom and on opposite side of N. restroom wall. *Wall System (M005B) was tested and results were: <0.1% Chrysotile Overall by Polarized Light Microscopy Method, <0.1% Overall by Point Count Method, and 2.2% Chrysotile in the joint compound portion only, by Point Count Method. This material is regulated by OSHA but not EPA.*			
M011	Built-up Roofs, multi-layer/sq.ft. White rocks on top & green rocks lower layer Entire S. arched roof area, under sealed rubber membrane roofing material	Category 1 Non-friable	5% Chrysotile	7,500 sq. ft.
	Over entire area of S. arched roof located underneath a sealed rubber membrane layer (M018).			
M013	Roof Sealant (up to 12" wide). Black tar sealant, somewhat weather gray Perimeter flashing and around penetrations of of S. arched roof	Category 1 Non-friable	15% Chrysotile	300 ln. ft.
	This material is present on seams of cove base material, seams of flashing material, and around penetrations in S. arched roof. Some additional cost is required to remove this material in addition to the built-up roofing material (M011).			

Note: A homogeneous area of suspect material is considered an Asbestos-containing Material (ACM) if any one sample contains greater than 1% asbestos

Homogeneous Area Number	Material Description/Location	Friability	Asbestos Content	Amount
M016	Roof Sealant (up to 12" wide). Black tar sealant, somewhat weather gray Perimeter flashing and around four penetrations on W. flat roof	Category 1 Non-friable	15% Chrysotile	150 ln. ft.
	This material is on seams of cove base material, seams of flashing material, and around four vent penetrations of W. flat roof. This is the only asbestos-contuinng material on the W. flat roof.			
M020	Light Fixture - Wire Insulation Off-white fibrous insulation on outside of light fixture wiring (3) 14-inch round light fixtures in restroom areas.	Category 2 Non-friable	Assumed	3 units
	Light fixture wiring was assumed ACM to save sample cost. Abatement cost per light fixture is less than $25 each.			

Note: A homogeneous area of suspect material is considered an Asbestos-containing Material (ACM) if any one sample contains greater than 1% asbestos

Table 2

Homogeneous Areas That Do Not Contain Asbestos

Frank Edwards Company Building

IHI Project #07A-1071

Homogeneous Area Number	Material Description	Material Location
M001	Vinyl Floor Sheeting Brownish colored	S. Restroom
M002	Vinyl Floor Sheeting Off-white squares pattern	North breakroom restroom & adjacent hallway
M004	Floor tile and mastic 12" White *Tile is over asbestos floor tile (M003) in north and west restroom.*	Both N. restrroms
M005	Wall System Gypsum board, tape & joint compound *Wall systems were tested and found to be non-asbestos in the north areas of the building.*	In some north office areas, north breakroom, and north restrooms
M005A	Joint Compound White *Wall systems were tested and found to be non-asbestos in the north areas of the building.*	On seams of fmished wall systems in north area of building
M006	Gypsum Board Typical gypsum board wall sheeting (no finish) *This gypsum board has no joint compound finish on it. In N.E. office areas, it is located behind wall panelling.*	All E. office areas
M007	Ceiling Tile 2' x 4' White ceiling tile	Throughout the office areas
M010	Stucco Typical bumpy stucco finish	Over exterior S. wall of building
M012	Roofing Tar & Felt Black paper and black felt	On perimeter of S. arched roof at the cove base (cove base roofmg material)

Homogeneous Area Number	Material Description	Material Location
M014	**Built-up Roofs, multi-layer/sq.ft.** White rocks (under pea gravel evapoartive rocks)	Over entire W. flat roof area
M015	**Roofing Tar & Felt** White rocks roofing felt	On perimeters of W. falt roof (cove base roofing material)
M017	**Built-up Roofs, multi-layer/sq.ft.** White rocks built-up roofing	Entire area of N. arched roof under sealed rubber membrane roofing material
	Over entire area of N. arched roof, located underneath a sealed rubber membrane layer (M018).	
M018	**Roofing Membrane** Black rubber membrane	Over entire N. and S. arched roof areas
	Sealed membrane roofing is located over smapled built-up roofing material M011 over S. arched roof and sampled built-up roofing M017 over N. arched roof.	
M019	Stucco Softer sprayed on stucco material (painted gray and light tan)	Over exterior E. and N. walls of building

Table 3

Bulk Sample Analytical Results by Sample Number

Frank Edwards Company Building

IHI Project #07A-1071

Sample Nnmber	Homogeneous Area Number	Material Sampled	Sample Location	Analytical Results
1071-01	M001	Vinyl Floor Sheeting	Threshold of S restroom	ND
1071-02	M002	Vinyl Floor Sheeting	Threshold of hallway leading to N. restroom	ND
1071-03	M003	Floor Tile and Mastic	Center of room just E. of N. restrooms	10% Chrysotile (tile) ND (mastic)
1071-04	M004	Floor Tile and Mastic	Threshold to N. restroom	ND (Tile) ND (Mastic)
1071-05	M005	Wall System	S.E. corner of breakroom	ND
1071-06	M005	Wall System	S.E. corner of N.E. office	ND
1071-07	M005	Wall System	N.W. corner of S. restroom	<1.0% Overall Chrysotile 1.2% Joint compou Chrysotile only
1071-08	M005A	Joint Compound	Center of S. breakroom wall (behind outlet cover)	NA
1071-09	M005A	Joint Compound	Center of N. wall in northeast office	NA
1071-10	M005B	Joint Compound	Outside N.E. corner of S. restroom	1.2% Chrysotile (PLM) 2.2% by PC
1071-11	M006	Gypsum Board - Unfinished (no joint compound)	Center of S. warehouse divider wall	ND
1071-12	M006	Gypsum Board - Unfinished (no joint compound)	N.W. corner of S.E. room	ND

Sample Number	Homogeneous Area Number	Material Sampled	Sample Location	Analytical Results
1071-13	M006	Gypsum Board - Unfinished (no joint compound)	N.E. corner of N.E. most office	ND
1071-14	M007	Ceiling Tile (2' x 4')	Center of breakroom ceiling	ND
1071-15	M007	Ceiling Tile (2' x 4')	N.W. corner of S.E. room	ND
1071-16	M008	Brick	Center of S. wall in N.E. warehouse (sampled not analyzed because material is not suspect and was none detected on a previous survey)	NA
1071-17	M009	Brick Mortar	Center of S. wall in N.E. warehouse (sampled not analyzed because material is not suspect and was none detected on a previous survey)	NA
1071-18	M010	Stucco	W. side of exterior S. wall	ND
1071-19	M011	Built-up Roofing, multi-layer	N.W. area of S. roof under sealed membrane	5% Chrysotile
1071-20	M012	Roofing Tar & Felt	Center of W. parapet of S. arched roof (cove base roofing material)	ND
1071-21	M013	Roof Sealant (up to 12" wide)	Center of W. parapet of S. arched roof	15% Chrysotile
1071-22	M014	Built-up Roofs, multi-layer	S.E. area of W. flat roof	ND
1071-23	M015	Roofing Tar & Felt	S.E. parapet of W. flat roof (cove base roofing material)	ND
1071-24	M016	Roof Sealant (up to 12" wide).	S.E. parapet of W. flat roof	15% Chrysotile
1071-25	M017	Built-up Roofs, multi-layer	S.W. area of N. arched roof (under scaled membrane)	ND

Sample Number	Homogeneous Area Number	Material Sampled	Sample Location	Analytical Results
1071-26	M018	Roofing Membrane & Seam Sealant	S.W. area of N. arched roof	ND
1071-27	M019	Stucco	Center of exterior E. wall	ND

Note: ND =No Asbestos Detected, NA= Not Analyzed, TR = <1% Asbestos, PC = Point Count

Table 4

Bulk Sample Analytical Results by Homogeneous Area Number

Frank Edwards Company Building

IHI Project #07A-1071

Sample Number	Homogeneous Area Nnmber	Material Sampled	Sample Location	Analytical Results
1071-01	M001	Vinyl Floor Sheeting	Threshold of S. resuoom	ND
1071-02	M002	Vinyl Floor Sheeting	Threshold of hallway leading to N. restroom	ND
1071-03	M003	Floor Tile and Mastic	Center of room just E. of N. restrooms	10% Chrysotile (tile) ND (mastic)
1071-04	M004	Floor Tile and Mastic	Threshold to N. restroom	ND (Tile) ND (Mastic)
1071-05	M005	Wall System	S.E. corner of breakroom	ND
1071-06	M005	Wall System	S.E. corner of N.E. office	ND
1071-07	M005	Wall System	N.W. corner of S. restroom	<1.0% Overall Chrysotile 1.2% Joint compound Clurysotile only
1071-08	M005A	Joint Compound	Center of S. breakroom wall (behind outlet cover)	NA
1071-09	M005A	Joint Compound	Center of N. wall in northeast office	NA
1071-10	M005B	Joint Compound	Outside N.E. corner of S. restroom	1.2% Chrysotile (PLM) 2.2% by PC
1071-11	M006	Gypsum Board - Unfinished (no joint compound)	Center of S. warehouse divider wall	ND
1071-12	M006	Gypsum Board - Unfinished (no joint compound)	N.W. corner of S.E. room	ND
1071-13	M006	Gypsum Board - Unfinished (no joint compound)	N.E. corner of N.E. most office	ND
1071-14	M007	Ceilmg Tile (2' x 4')	Center of breakroom ceiling	ND

Sample Number	Homogeneous Area Number	Material Sampled	Sample Location	Analytical Results
1071-15	M007	Ceiling Tile (2' x 4')	N.W. corner of S.E. room	ND
1071-16	M008	Brick	Center of S. wall in N.E. warehouse (sampled not analyzed because material is not suspect and was none detected on a previous survey)	NA
1071-17	M009	Brick Mortar	Center of S. wall in N.E. warehouse (sampled not analyzed because material is not suspect and was none detected on a previous survey)	NA
1071-18	M010	Stucco	W. side of exterior S. wall	ND
1071-19	M011	Built-up Roofing, multi-layer	N.W. area of S. roof under sealed membrane	5% Chrysotile
1071-20	M012	Roofing Tar & Felt	Center of W. parapet of S. arched roof (cove base roofing material)	ND
1071-21	M013	Roof Sealant (up to 12" wide)	Center of W. parapet of S. arched roof	15% Chrysotile
1071-22	M014	Built-up Roofs, multi-layer	S.E. area of W. flat roof	ND
1071-23	M015	Roofing Tar & Felt	S.E. parapet of W. flat roof (cove base roofing material)	ND
1071-24	M016	Roof Sealant (up to 12" wide).	S.E. parapet of W. flat roof	15% Chrysotile
1071-25	M017	Built-up Roofs, multi-layer	S.W. area of N. arched roof (under sealed membrane)	ND
1071-26	M018	Roofing Membrane & Seam Sealant	S.W. area of N. arched roof	ND
1071-27	M019	Stucco	Center of exterior E. wall	ND

Note: ND =No Asbestos Detected, NA= Not Analyzed, TR = <1% Asbestos, PC = Point Count

Table 5

Damage and Hazard Assessment by Homogeneous Area

Frank Edwards Company Building

IHI Project #07A-1071

Homogeneous Area Number	Material Type	Substrate	Assessment Category	Damage	Accessibility	Disturbance Potential
M003	Floor tile and mastic	Cement	X	Slight Damage	Rarely Accessed	Low
M005B	Wall System	Framework	7	No Damage	Rarely Accessed	High
M011	Built-up Roofs, multi-layer/sq.ft.	Wood	X	Slight Damage	Rarely Accessed	Low
M013	Roof Sealant (up to 12" wide).	Concrete	X	Slight Damage	Rarely Accessed	Low
M016	Roof Sealant (up to 12" wide).	Wood	X	Slight Damage	Rarely Accessed	Low
M020	Light Fixture - Wire Insulation	Not Applicable	X	No Damage	Rarely Accessed	Low

Note: Damage Assessment Categories:
1-Damaged or significantly damaged thermal system insulation ACM
2-Damaged friable surfacing ACM
3-Significantly damaged friable surfacing ACM
4-Damaged or significantly damaged friable miscellaneous ACM
5-ACM with potential for damage
6-ACM with potential for significant damage
7-Any remaining friable ACM or friable suspect ACM
X-Not applicable (material is nonfriable surfacing or miscellaneous material)

Table 6

Estimated Abatement Costs by Homogeneous Area

Frank Edwards Company Building

IHI Project #07A-1071

Homogeneous Area Number	Material	Amount		Unit Cost	Extended Cost
M003	Floor tile and mastic	470	sq. ft.	$3.83	$1,800
M005B	Wall System	400	sq. ft.	$2.29	$916
M011	Built-up Roofs, multi-layer/sq.ft.	7,500	sq. ft.	$5.68	$42,600
M013	Roof Sealant (up to 12" wide).	300	ln. ft.	$7.30	$2,190
M016	Roof Sealant (up to 12" wide).	150	ln. ft.	$7.30	$1,095
M020	Light Fixture - Wire Insulation	3	units	$21.04	$63
		Total Estimated Abatement Cost			**$48,664**

Note: Estimated abatement costs do not include replacement costs or costs for a consultant to manage the abatement.

Appendix B

Laboratory Analytical Reports

DIXON INFORMATION INC.
MICROSCOPY, ASBESTOS ANALYSIS & CONSULTING
A.I.H.A. ACCREDITED LABORATORY # 101579
NVLAP LAB CODE 101012-0

April 20, 2007

Mr. John Murphy
IHI Environmental
640 E. Wilmington Avenue
Salt Lake City, UT 84106

Ref: Batch # 73964, Lab # H4116-H4140
Received April 18, 2007
Test report
Frank Edwards Company
100 So. 300 W. SLC, UT
Project # 07A-1071
Sampled by John Murphy

Dear Mr. Sanders:

Samples H4116 through H4140 have been analyzed by visual estimation based on EPA-600/M4-82-020 December 1982 optical microscopy test method. Appendix "A" contains statements which an accredited laboratory must make to meet the requirements of accrediting agencies. It also contains additional information about the method of analysis. Appendix "A" must be included as an essential part of this test report.

This report may be reproduced but all reproduction must be in full unless written approval is received from the laboratory for partial reproduction. The results of analysis are as follows:

Lab H4116, Field M001-1071-01 10:30, Brownish sheet vinyl flooring
This sample has a top layer of tan and white plastic, a middle layer of white foam plastic, and a bottom layer of 25% plant fiber, and 5% fiberglass in gray binder with yellow resin and black tar mastic. **Asbestos is none detected.**

The top layer is 20% of the sample. The middle layer is 30% of the sample. The bottom layer is 50% of the sample.

Lab H4117, Field M002-1071-02 10:40, Off-white sheet vinyl flooring
This sample has a top layer of off-white plastic, a middle layer of white foam plastic, and a bottom layer of 25% plant fiber, and 5% fiberglass in gray binder with yellow resin mastic. **Asbestos is none detected.**

The top layer is 20% of the sample. The middle layer is 30% of the sample. The bottom layer is 50% of the sample.

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PHONE 801-486-0800 • FAX 801-486-0849 • RES. 801-571-7695

Lab H4118, Field M003-1071-03 11:00, 9" tan and brown tile and black mastic
This sample contains three types of material: The first type is yellow resin mastic; the second type is **10% chrysotile asbestos** in brown plastic and limestone; the third type is black tar. This sample is non-homogeneous.

The first type is 1% of the sample. The second type is 96% of the sample. The third type is 3% of the sample.

Lab H4119, Field M004-1071-04 11:00, 12" white tile with black and yellow mastic
This is a brown and white plastic and limestone tile with black tar mastic. **Asbestos is none detected.**

The tile is 90% of the sample. The mastic is 10% of the sample.

Lab H4120, Field M005-1071-05 11:05, Gypsum Board, tape and joint compound
This sample contains white paint, white micaceous limestone joint compound, tan and white plant fiber paper, and white gypsum plaster with 1% fiberglass. This sample is non-homogeneous. **Asbestos is none detected.**

The paint is 2% of the sample. The joint compound is 20% of the sample. The plant fiber paper is 20% of the sample. The white gypsum plaster is 58% of the sample.

Lab H4121, Field M005-1071-06 11:10, Gypsum Board, tape and joint compound
This sample contains white paint, white micaceous limestone joint compound, tan and white plant fiber paper, and white gypsum plaster with 1% fiberglass. This sample is non-homogeneous. **Asbestos is none detected.**

The paint is 1% of the sample. The joint compound is 4% of the sample. The plant fiber paper is 5% of the sample. The white gypsum plaster is 90% of the sample.

Lab H4122, Field M005-1071-07 11:15, Gypsum board, Tape and joint compound
This sample contains white paint, **1.2% chrysotile asbestos** in micaceous white limestone joint compound, tan and white plant fiber paper, and white gypsum plaster with 1% fiberglass. This sample is non-homogeneous. Overall, this is less than 1% chrysotile asbestos.

The paint is 1% of the sample. The joint compound is 15% of the sample. The plant fiber paper is 10% of the sample. The white gypsum plaster is 74% of the sample.

Lab H4123, Field M005A-1071-08 11:20, Joint compound only
According to your instructions this sample was not analyzed. There is no charge for this sample.

Lab H4124, Field M005A-1071-09 11:25, Joint compound only
According to your instructions this sample was not analyzed. There is no charge for this sample.

Lab H4125, Field M005A-1071-10 11:30, Joint Compound only
By visual estimation this sample contains two types of material: The first type is tan paint; the second type is **1.2% chrysotile asbestos** in two layers of white limestone plaster with fine mica. This sample is non-homogeneous.

The first type is 2% of the sample. The second type is 98% of the sample.

By point count this is **2.2% chrysotile asbestos.** 20 asbestos points were counted. 383 non-asbestos particle points were counted. The slides were prepared from a 35% ash and dilute acid wash recovery.

Lab H4126, Field M006-1071-11 11:35, Gypsum board only
This sample contains two types of material: The first type is tan plant fiber paper; the second type is 1% fiberglass and less than 1% plant fiber in white gypsum plaster. This sample is non-homogeneous. **Asbestos is none detected.**

The first type is 4% of the sample. The second type is 96% of the sample.

Lab H4127, Field M006-1071-12 11:40, Gypsum board only
This sample contains purple paint, tan plant fiber paper, and white gypsum plaster with 2% plant fiber. This sample is non-homogeneous. **Asbestos is none detected.**

The paint is 1% of the sample. The plant fiber paper is 5% of the sample. The white gypsum plaster is 94% of the sample.

Lab H4128, Field M006-1071-13 11:45, Gypsum board only
This sample contains two types of material: The first type is tan plant fiber paper; the second type is 1% plant fiber and 1% fiberglass in white gypsum plaster. This sample is non-homogeneous. **Asbestos is none detected.**

The first type is 5% of the sample. The second type is 95% of the sample.

Lab H4129, Field M007-1071-14 12:15, 2'x4' drop ceiling tile
This is a light gray sample with perlite, 35% plant fiber, and 15% mineral wool in resin binder with a white coating on one side. **Asbestos is none detected.**

The white coating is 2% of the sample.

Lab H4130, Field M007-1071-15 12:30, 2'x4' drop ceiling tile
This is a light gray sample with perlite, 35% plant liber, and 15% mineral wool in resin binder with a white coating on one side. **Asbestos is none detected.**

The white coating is 2% of the sample.

Lab H4131, Field M010-1071-18 12:35, Stucco Type 1
This sample contains four types of material: The first type is white paint; the second type is off-white plaster with sand; the third type is gray sandy plaster with 15% cross-woven fiberglass; the fourth type is white foam plastic. This sample is non-homogeneous. **Asbestos is none detected.**

The first type is 2% of the sample. The second type is 25% of the sample. The third type is 63% of the sample. The fourth type is 10% of the sample.

Lab H4132, Field M011-1071-19 12:45, Buih -up roofing core S. arched roof
This sample contains four types of material: The first type is green and white rocks; the second type is black tar layers; the third type is 40% plant fiber in black tar felt layers; the fourth type is **5% chrysotile asbestos** in black tar with rubber and limestone. This sample is non-homogeneous.

The first type is 10% of the sample. The second type is 32% of the sample. The third type is 55% of the sample. The fourth type is 3% of the sample.

Lab H4133, Field M012-1071-20 12:50, Roofing cove base So. Arched roof
This sample contains two types of material: The first type is 50% plant fiber in black tar felt layers; the second type is black tar layers. This sample is non-homogeneous. Overall, this is **less than 1% chrysotile asbestos**. The asbestos source could not be determined.

The first type is 60% of the sample. The second type is 40% of the sample.

Lab H4134, Field M013-1071-21 12:55, Roof tar sealant So. Arched roof
This sample contains two types of material: The first type is **15% chrysotile asbestos** in black tar sealant; the second type is 2% plant fiber in black tar with green rocks. This sample is non-homogeneous.

The first type is 70% of the sample. The second type is 30% of the sample.

Lab H4135, Field M014-1071-22 13:05, Built-up roofing core. Flat roof
This sample contains three types of material: The first type is 50% plant fiber in black tar felt layers; the second type is black tar layers; the third type is perlite and 45% plant fiber in brown insulation. This sample is non-homogeneous. **Asbestos is none detected.**

The first type is 20% of the sample. The second type is 60% of the sample. The third type is 20% of the sample.

Lab H4136, Field MO15-1071-23 13:15, Flat roof cove base core
This sample contains three types of material: The first type is 50% plant fiber in black tar felt layers; the second type is black tar layers; the third type is perlite and 45% plant fiber in brown insulation. This sample is non-homogeneous. **Asbestos is none detected.**

The first type is 35% of the sample. The second type is 35% of the sample. The third type is 30% of the sample.

Lab H4137, Field M016-1071-24 13:25, Flat roof Tan Sealant
This is **15% chrysotile asbestos** in black tar sealant.

Lab H4138, Field M017-1071-25 13:35, N. arched roof core
This sample contains two types of material: The first type is 20% plant fiber in black tar layers with sand; the second type is black tar layers. This sample is non-homogeneous. **Asbestos is none detected.**

The first type is 50% of the sample. The second type is 50% of the sample.

Lab H4139, Field M018-1071-26 13:45, Sealed membrane and seam sealant
This is black rubber with limestone. **Asbestos is none detected.**

Lab H4140, Field M019-1071-27 14:30, Stucco type II
This sample contains three types of material: The first type is off-white binder with perlite and 3% mineral wool; the second type is blue paint; the third type is sand in off-white plaster with a trace of mica. This sample is non-homogeneous. **Asbestos is none detected.**

The first type is 30% of the sample. The second type is 5% of the sample. The third type is 65% of the sample.

In order to be sure reagents and tools used for analysis are not contaminated with asbestos, blanks are tested. Asbestos was none detected in the blanks tested with this bulk sample set.

Very truly yours,

Steve H. Dixon, President

Analyst: Kai Samuelsen

Analyst: Steve H. Dixon Date Analyzed: 4/19/07

DIXON INFORMATION INC.
MICROSCOPY, ASBESTOS ANALYSIS & CONSULTING
A.I.H.A. ACCREDITED LABORATORY # 101579
NVLAP LAB CODE 101012-0

April 30, 2007

Mr. John Murphy
IHI Environmental
640 East Wilmington Ave
Salt Lake City, UT 84106

Ref: Batch # 74101, Lah # H4223
Received April 27, 2007
Test report
Frank Edwards Company
100 So. 300 W. SLC, UT
Project # 07A-1071
Previous Batch # 73964, Lab #H4122
Sampled by John Murphy

Dear Mr. Murphy:

Sample H4223 has been analyzed by visual estimation based on EPA-600/M4-82-020 December 1982 optical microscopy test method. Appendix "A" contains statements which an accredited laboratory must make to meet the requirements of accrediting agencies. It also contains additional information about the method of analysis. This analysis is accredited by NVLAP. Appendix "A" must be included as an essential part of this test report.

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Lab H4223. (H4122) Field M005-1071-07 11:15, Gypsum board, Tape and joint compound
By visual estimation this sample contains white paint, **1.2% chrysotile asbestos** in micaceous white limestone joint compound, tan and white plant fiber paper, and white gypsum plaster with 1% fiberglass. This sample is non-homogeneous. Overall, this is less than1% chrysotile asbestos.

The paint is 1% of the sample. The joint compound is 15% of the sample. The plant fiber paper is 10% of the sample. The white gypsum plaster is 74% of the sample.

Overall, by point count this is **less than 1% chrysotile asbestos.** 1 asbestos points were counted. 400 non-asbestos particle points were counted. The slides were prepared from a 31% ash and dilute acid wash recovery.

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In order to be sure reagents and tools used for analysis are not contaminated with asbestos, blanks are tested. Asbestos was none detected in the blanks tested with this bulk sample set.

Very truly yours,

Steve H. Dixon, President

Analyst: Steve H. Dixon Date Analyzed: 4/29/07

IHI ENVIRONMENTAL

RUSH

#73964

Bulk Analytical Request Form

RUSH: YES: ☒ NO: ☐

Page # 1 of 3

IHI Project No: 07A-1071 Date: 4/18/07

Laboratory Name: Dixon Information Inc. Telephone: (801) 486-0800

Address: 78 West 2400 South
Salt Lake City, UT 84115

Sampling Site 100 So. 300 W. Sec. UT Frank Edwards Company

Results Requested for Name: John Murphy by Date: by Time: As Soon As you can.

Homog. Area	Sample Field Number	Laboratory Number	Time Collected	Type Friable	Type Non-Fri	Sample Description
M001	1071-01		1030		X	Brown 9" Sheet Vinyl Flooring
M002	1071-02		1040		X	Off-white sheet Vinyl Flooring
M003	1071-03		1050		X	9" Tan + Brown Tile + Black Mastic
M004	1071-04		1100		X	12" White Tile w/ Black + Yellow Mastic
M005	1071-05		1105	X		Cupboard Tape + Joint Compound
M005	1071-06		1110	X		" "
M005	1071-07		1115	X		" "
M005A	1071-08		1120		X	Joint Compound only
M005A	1071-09		1125		X	" "
M005A	1071-10		1130		X	" "

Comments Please analyze M005 as a "STOP-GO" sample set. If asbestos is detected in the Joint Compound and you need more sample to quantify, Then analyze the corresponding M005A Joint Compound only Sample Plus Point count if necessary Thank you.

SAMPLE TRANSFER RECORD (CHAIN OF CUSTODY)

Date	Time	Sealed	Printed Name	Signature	Company	Transfer Reason
4/18/07	10 00	Yes	John Murphy	John Murphy	IHI	Sent to Lab
						Transported to Lab
4/18/07	16:15	Yes	Susan Bigler	Susan Bigler	Dixon	Received by Lab
4-18-07	17:00		Susan Bigler	Susan Bigler	Dixon	Rec'd by Analyst
4-19-07	23:00		Brad Dixon	Brad Dixon	Dixon	Analysis Complete
4-22-07	15:00		Brad Dixon	Brad Dixon	Dixon	Supervisor OK

Lab Results (along with this completed form) and Invoices should be sent to:

640 E. Wilmington Avenue, Salt Lake City, Utah 84106 Telephone: 801-466-2223 Fax: 801-466-9616

IHI

ENVIRONMENTAL

RUSH

73964

Bulk Analytical Request Form

RUSH: YES: ☒ NO: ☐

Page # 2 of 3

IHI Project No: 07A-1071 Date: 4/18/07

Laboratory Name: Dixon Information Inc. Telephone: (801) 486-0800

Address: 78 West 2400 South
Salt Lake City, UT 84115

Sampling Site 100 So. 300 W. SLC, UT FRANK Edwards Company

Results Requested for Name: John Murphy by Date: by Time: As soon as you can.

Homog. Area	Sample Field Number	Laboratory Number	Time Collected	Type Friable	Type Non-Fri	Sample Description
M006	1071-11		1135	X		gypsum board only
M006	1071-12		1140	X		" "
M006	1071-13		1145	X		" "
M007	1071-14		1215	X		2'x4' Drop Ceiling Tile
M007	1071-15		1230	X		" "
M010	1071-18		1235		X	STUCCO TYPE I
M011	1071-19		1245		X	Built-up Roofing core S. Attached Roof
M012	1071-20		1250		X	Roofing Cove Base ~~Concrete~~ Roof
M013	1071-21		1255		X	Roof Tar Sealant So. Attached Roof
M014	1071-22		1305		X	Built-up Roofing core Flat Roof

Comments Analyze M006 + M007 AS "STOP-GO" Sample groups.
Thankyou.

SAMPLE TRANSFER RECORD (CHAIN OF CUSTODY)

Date	Time	Sealed	Printed Name	Signature	Company	Transfer Reason
4/18/07	1000	yes	John Murphy	John Murphy	IHI	Sent to Lab
					-	Transported to Lab
4/18/7	10:15	yes	Susan Bayes	Susan Bayes	Dixon	Received by Lab
4-19-07	0800		Steve Dixon	[illegible]	Dixon	Rec'd by Analyst
4-19-07	2300		Steve Dixon	[illegible]	Dixon	Analysis Complete
4-20-07	1500		Steve Dixon	[illegible]	Dixon	Supervisor OK

Lab Results (along with this completed form) and Invoices should be sent to:

640 E. Wilmington Avenue, Salt Lake City, Utah 84106 Telephone: 801-466-2223 Fax: 801-466-9616

#73964

RUSH

IHI

ENVIRONMENTAL

Bulk Analytical Request Form

RUSH: YES: ☒ NO: ☐

Page # 3 of 3

IHI Project No: 07A-1071 Date: 4/18/07

Laboratory Name: Dixon Information Inc. Telephone: (801) 486-0800

Address: 78 West 2400 South
Salt Lake City, UT 84115

Sampling Site 100 So. 300 W. SLC, UT FRANK Edwards Company

Results Requested for Name: John Murphy by Date: by Time: As Soon As you can

Homog. Area	Sample Field Number	Laboratory Number	Time Collected	Type Friable	Type Non-Fri	Sample Description
M015	1071-23		1315		X	Flat roof Core Base core
M016	1071-24		1325		X	Flat Roof Top Sealant
M017	1071-25		1335		X	Mi. Arched Roof core
M018	1071-26		1345		X	Sealed Membrane + Seam Sealant
M019	1071-27		1430		X	STUCCO Type II

Comments

SAMPLE TRANSFER RECORD (CHAIN OF CUSTODY)

Date	Time	Sealed	Printed Name	Signature	Company	Transfer Reason
4/18/07	1000	yes	John Murphy	John Murphy	IHI	Sent to Lab
						Transported to Lab
4/18/07	1015	yes	Susan Byers	Susan Byers	Dixon	Received by Lab
4-19-07	1230		Steve Dixon		Dixon	Rec'd by Analyst
4-19-07	2300		Steve Dixon		Dixon	Analysis Complete
4-20-07	1500		Steve Dixon		Dixon	Supervisor OK

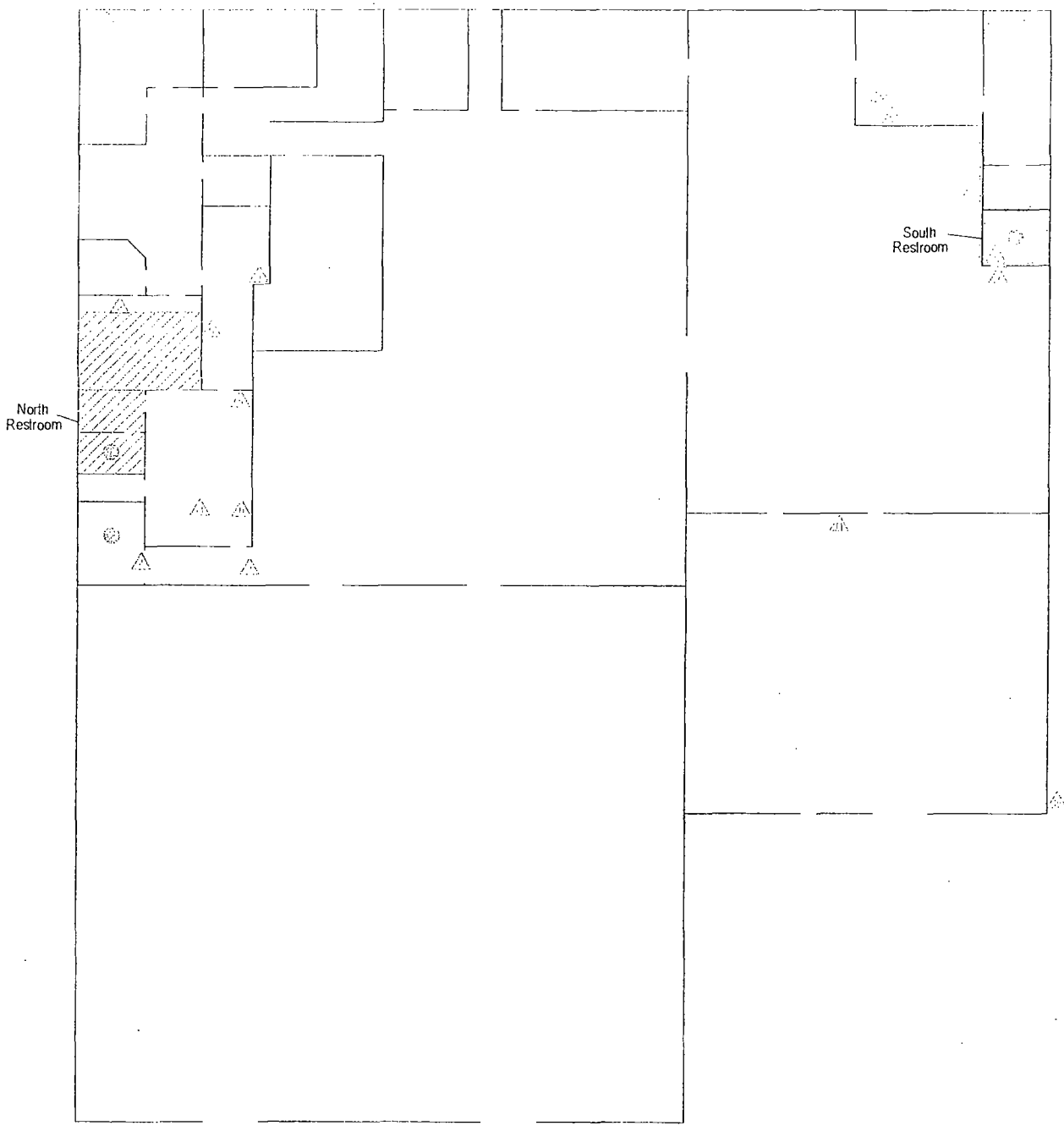
Lab Results (along with this completed form) and Invoices should be sent to:

640 E. Wilmington Avenue, Salt Lake City, Utah 84106 Telephone: 801-466-2223 Fax: 801-466-9616

Appendix C

Building Floor Plans

Pre-demo Survey : Main Level Floor Plan



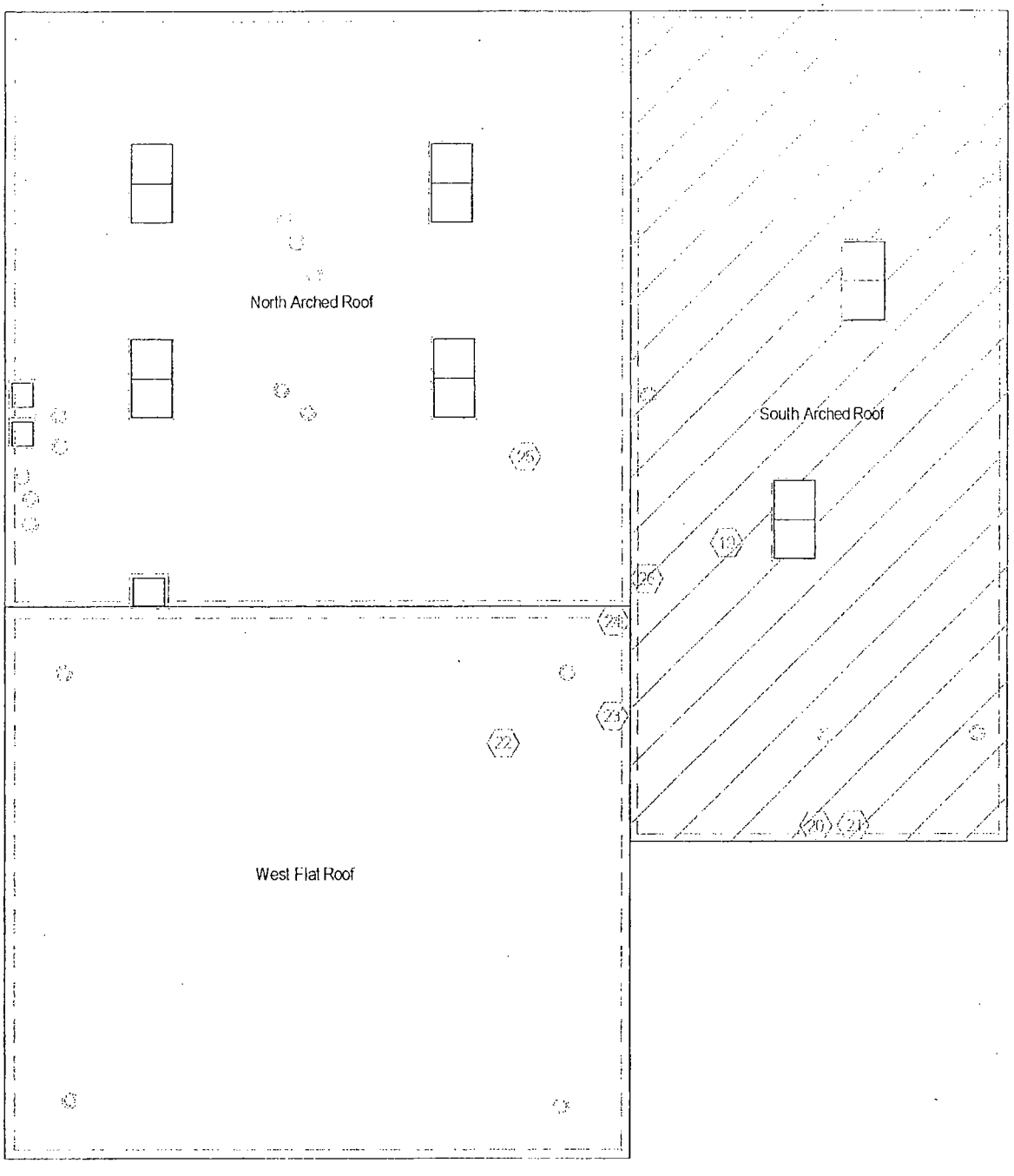
Explanation

- Sample Location and Number
- Asbestos-containing joint compound in wall system (M005B)
- Asbestos-containing light fixture wiring
- Asbestos-containing 9" floor tile (under non-ACM floor tile in restroom)

N

CLIENT INFO. Frank Edwards Building 100 South 300 West Salt Lake City, Utah	APPROXIMATE SCALE 30'	
	DRAWN BY: Murphy	PROJECT No.: 07A-1071
	DATE: April 20, 2007	CAD No.: 07A1071A

Pre-demo Survey : Roof Plan



Explanation

- Roof Sample Location and Number
- Areas of asbestos-containing roofing tar sealant
  Some areas of tar sealant are underneath sealed membrane roofing
- Asbestos-containing built-up roofing material
  (under sealed membrane roofing)

N

CLIENT INFO	APPROXIMATE SCALE	
Frank Edwards Building 100 South 300 West Salt Lake City, Utah	30'	
	DRAWN BY: Murphy	PROJECT No.: 07A-1071
	DATE: April 20, 2007	CAD No.: 07A1071B

Appendix D

Photo Log

Frank Edwards Company - Photo Log

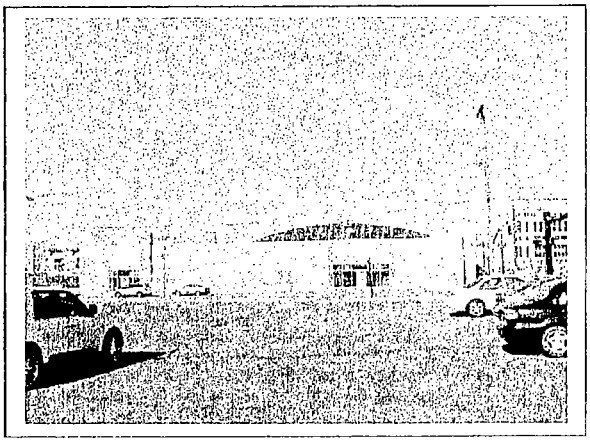


Photo #1 – Front view of former Frank Edwards Company building

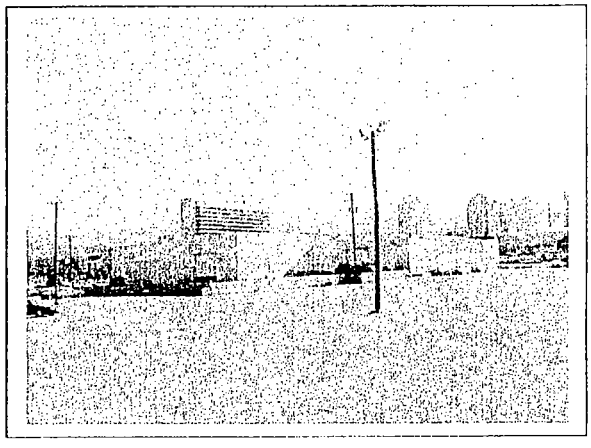


Photo #2 – Rear view of Former Frank Edwards Company building

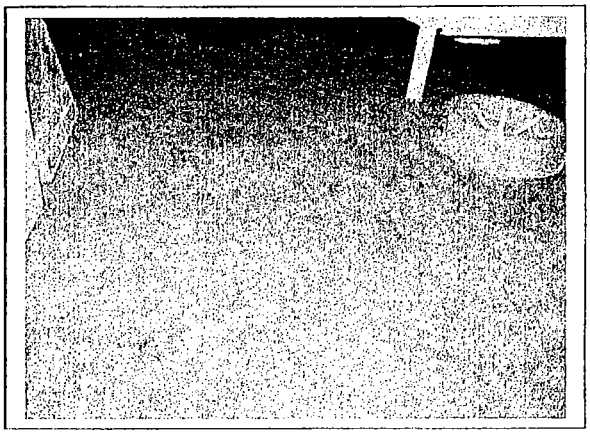


Photo #3 - Non-asbestos brownish colored sheet vinyl flooring (M001)

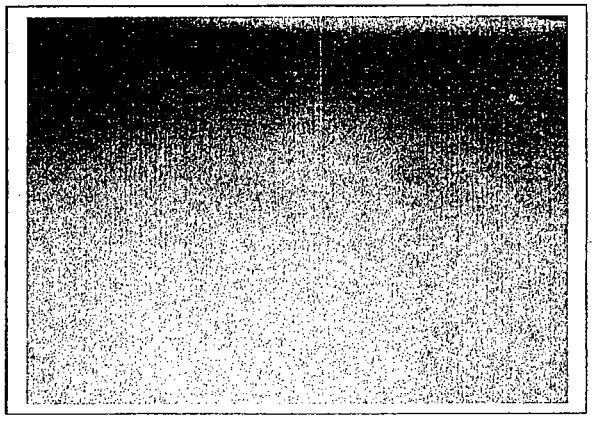


Photo #4 – Non-asbestos off-white sheet vinyl flooring (M002)

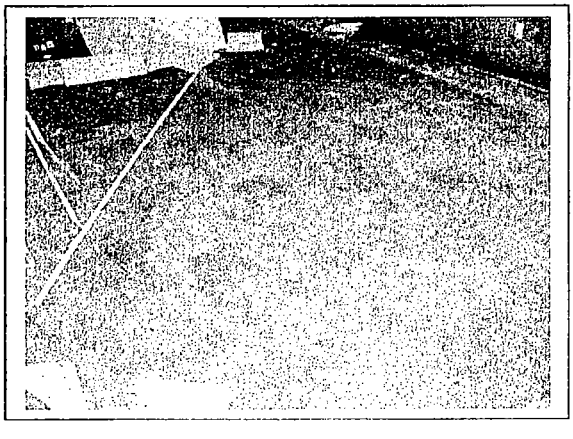


Photo #5 – Asbestos-containing 12" tan and brown floor tile (M003)

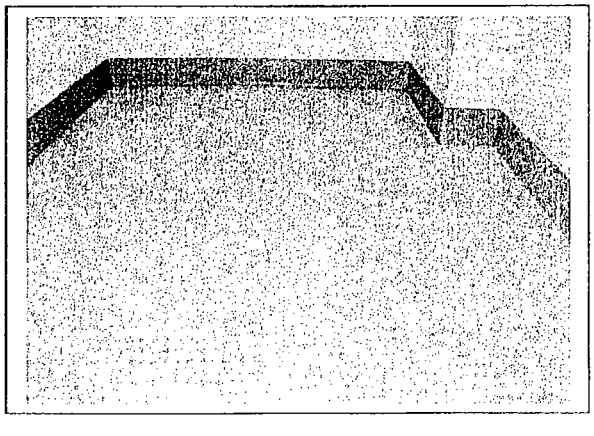


Photo #6 – Non-asbestos 12" white floor tile (M004) with (M003) underneath

Frank Edwards Company - Photo Log

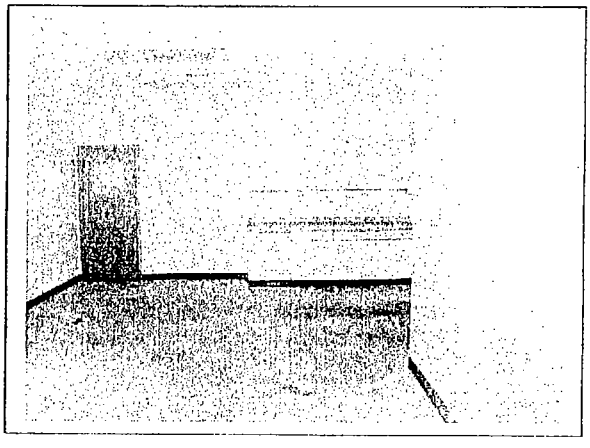


Photo #7 – Non-asbestos gypsum board wall system in N. break room (M005)

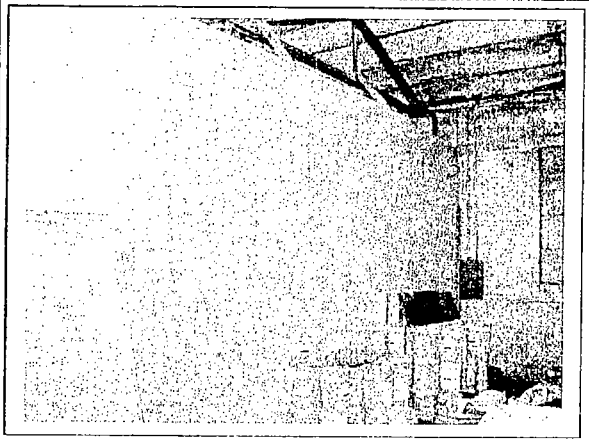


Photo #8 – Non-asbestos unfinished gypsum board wall in S. warehouse (M006)

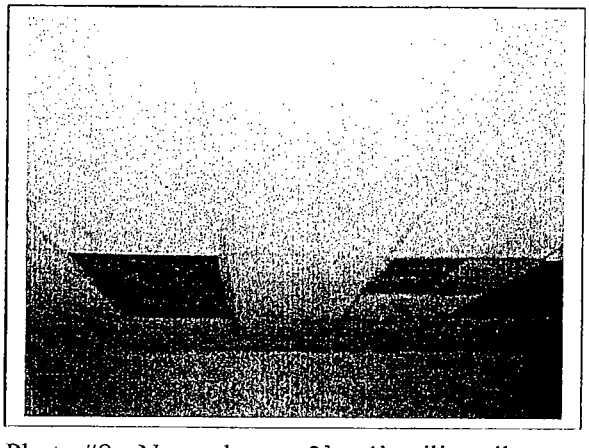


Photo #9 - Non-asbestos 2' x 4' ceiling tiles (M007)

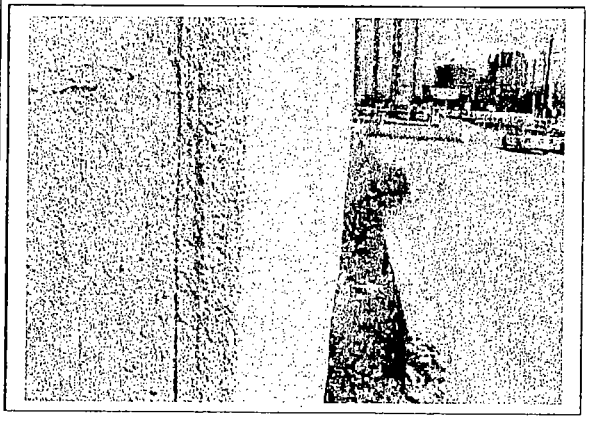


Photo #10 – Non-asbestos stucco on S. exterior wall (M010), also N. & E. exterior walls (M019)

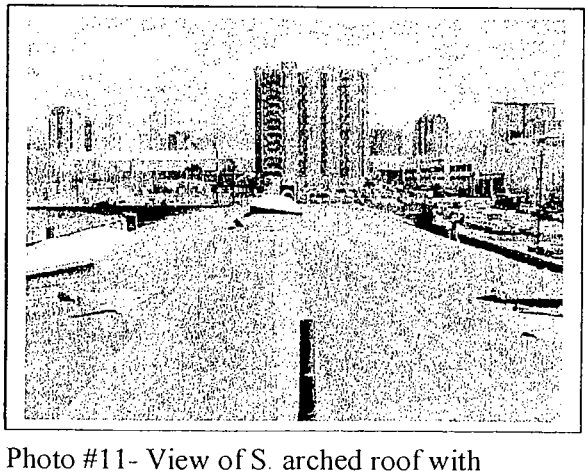


Photo #11- View of S. arched roof with asbestos-containing built-up roofing underneath the sealed membrane (M011)

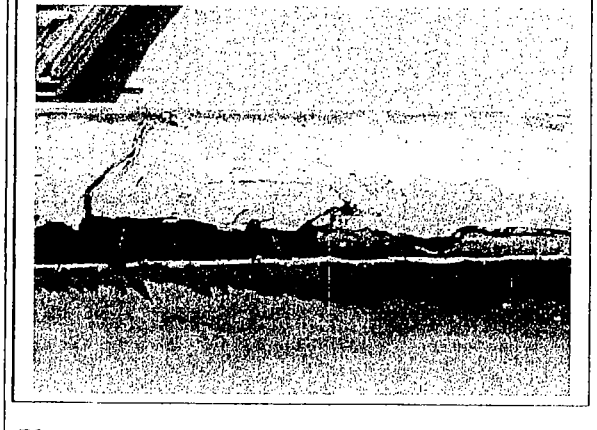


Photo #12 – Non-asbestos cove base roofing (M012) and asbestos-containing tar sealant (M013), S. side of S. arched roof

Frank Edwards Company - Photo Log

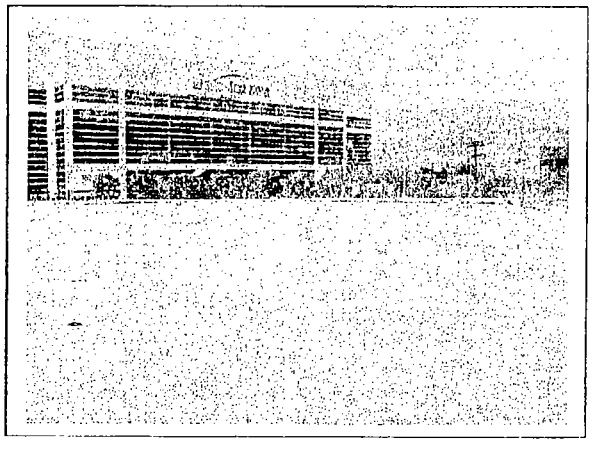


Photo #13 – Non-asbestos built-up roofing under pea gravel rock on W. flat roof (M014)

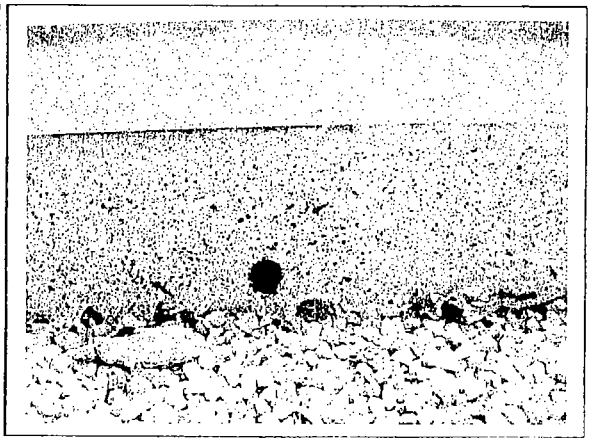


Photo #14 – Non-asbestos cove base roof sheeting on perimeter of W. flat roof (M015)

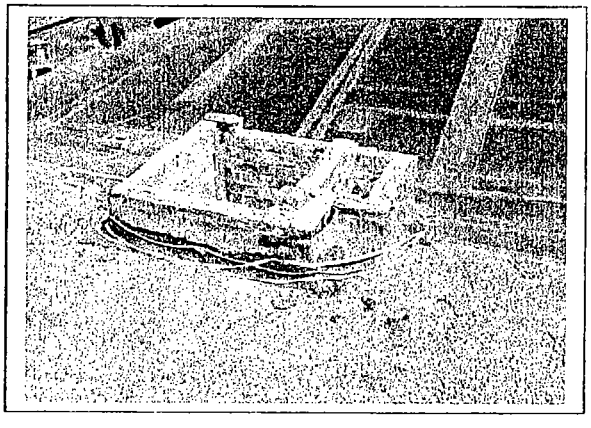


Photo #15 - Asbestos-containing roof tar sealant on penetrations and perimeter of W. flat roof (M016)

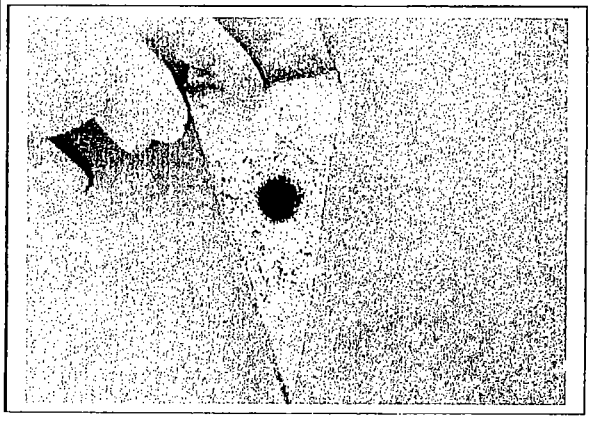


Photo #16 – Non-asbestos white rocks built-up roofing under sealed membrane roofing on N. arched roof (M017)

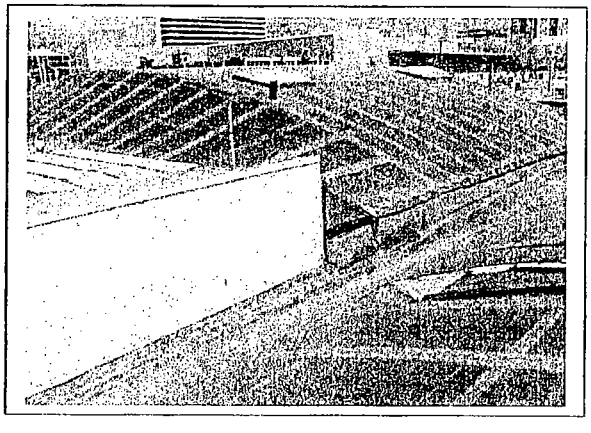


Photo #17 - Non-asbestos sealed membrane roofing over N. & S. arched roofs (M018)

Photo #18 – Assumed asbestos light fixture wiring (M020)

Appendix E

State of Utah 10-Day Notification Form

UTAH DIVISION OF AIR QUALITY
150 N 1950 W
P.O. Box 144820
Salt Lake City, UT 84114-4820

Postmark Date: _____
initials: _____
Fee Received: _____
Check Number: _____

10 WORKING-DAY NOTIFICATION OF DEMOLITION - no asbestos removed, no intentional burning

1 Fee $50 +$25 for each 5,000 sq. ft. of floor space above 5,000 sq. ft. $ _____

See fee calculator at www.deq.utah.gov/eqair/haps/asbestos/index.htm

2 Facility Name: Former Frank Edwards Company Building

Address: 100 South 300 West

City: Salt Lake City, Utah County: Salt Lake Zip Code: 84101

Part of Facility Involved,(e.g. floor #, room #, area etc.)

Age of Facility: Pre1962 Size: 28,000 # of Floors: One

Present use: Vacant-some storage Prior Use: Former auto parts warehouse & lumber distribution

3 Facility Owner/Operator Name: Westgate Property investments, LLC

Address: 180 South 300 West City: SLC State: Utah Zip Code: 84101

Contact Person: Mr. Richard Gordon Phone Number: (801) 533-8894

4 Demolition Contractor Name

Address: City: State: Zip Code:

Contact Person: Phone:

5 Dates of Demolition Start Date: Ending Date:

6 Asbestos Inspection Information Date of Inspection: 17-Apr-07

Name of Utah Certified Inspector: John Murphy ID Number: ASB-1117

Name of Utah Certified Asbestos Company: IHI Environmental ID Number: 22

Analytical Method used for asbestos analysis: Polarized Light Microscopy and Point Count

Is asbestos present? Yes Was it sampled or assumed? Sampled

7 Asbestos Containing Material to be left in the facility during demolition, (list types and amounts).

roofing _____ flooring _____ other _____

8 Description of procedures to be followed in the event that unexpected RACM is found or generated during the project.

attach additional sheets as necessary

9 I certify that the all the information in this notification is true and correct.

Signature of Owner/Operator _____ Date _____

Print name and title of Owner/Operator

OFFICIAL USE ONLY!

Date Accepted _____ Date Rejected _____

Acts #: _____ Reviewers Initials _____

Rejection Comments: _____

revision 6/27/02

Appendix F

Hazardous Materials Inspection
and
Salt Lake Valiey Health Department
Pre-demolition Inspection Form

Hazardous Materials Inspection
for the
Former Frank Edwards Company Building
100 South 300 West
Salt Lake City, Utah

IHI Project 07A-1071

April 30, 2007

Submitted To:

Mr. Richard Gordon
Attorney-At-Law
Westgate Lofts
180 South 300 West
Salt Lake City, Utah 84101

Prepared By:
IHI Environmental
640 E. Wilmington Ave.
Salt Lake City, Utah 84106
Phone: (801) 466-2223
Fax: (801) 466-9616

Hazardous Materials Inspection
for the
Former Frank Edwards Company Building
100 South 300 West
Salt Lake City, Utah

On April 17, 2007, John Murphy of IHI Environmental completed a hazardous material inspection of the Former Frank Edwards Company Building, located at 100 South 300 West, Salt Lake, Utah. Mr. Murphy is a certified Salt Lake County Health Pre-demolition Building Inspector (PBI-014). Mr. Richard Gordon, Attorney with Westgate Property Investments. LLC, requested the inspection.

The following hazardous materials were identified in the Former Frank Edwards Company Building:

Material	Location	Quantity	Unit Cost
Mercury containing Thermostats	Two N.E. office areas	2 units	$ 20 ea.
Fluorescent light tubes, containing mercury	Throughout the office areas of the building and stored in the N.W. warehouse	230 tubes (4 foot length)	$ 1.20 ea.
Fluorescent light tubes, containing mercury	Throughout the warehouse areas of the building and stored in the N.W. warehouse	276 tubes (8 foot length)	$ 2.40 ea.
Light ballast, suspected of containing PCBs	Throughout N.W. warehouse and stored in the N.W. warehouse	124 units	$ 6 ea.
Refrigeration unit, containing CFCs	Stored in the N.W. warehouse	110 units (15-30#)	$ 150 service $ 50/unit
Containers of liquid hazardous waste	Throughout the warehouse areas of the building	-10 units (55-gal drums) -280 units (1-qt. to 1-gal.) -10 car tires -1 car battery	$ 125 ea. $ 4 ea. $ 6 ea. $ 10 ea.

A graphical representation of these identified materials showing their locations can be found on the attached floor plan.

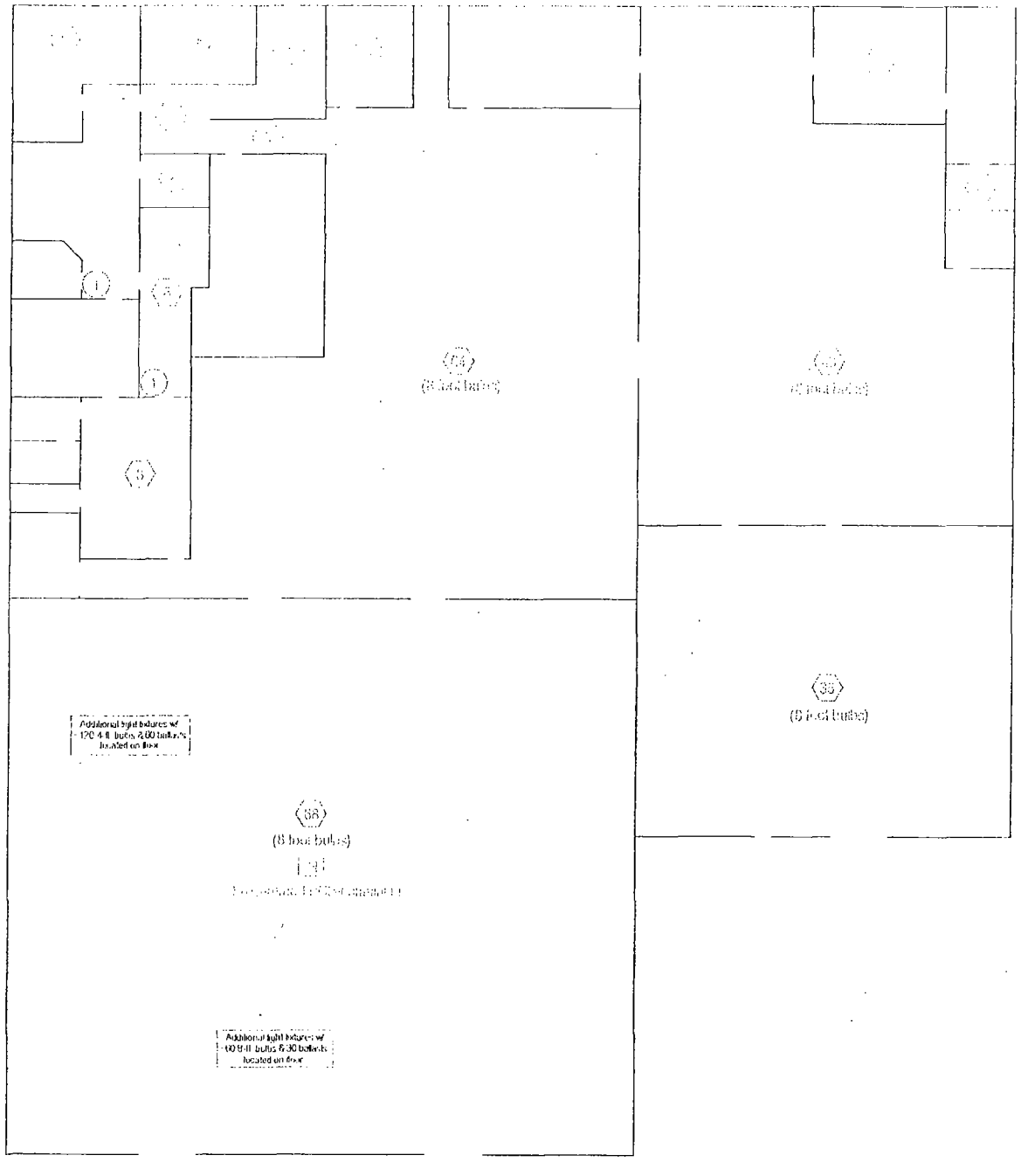
The Salt Lake County Department of Environmental Health requires all Universal Waste, such as fluorescent lights containing mercury, light ballasts containing PCBs, refrigeration units containing chlorofluorocarbons (CFCs) and containers of liquid hazardous waste be removed prior to demolition and disposed at a facility approved to accept such waste for disposal or recycling. These waste streams must be contained in United Nation (UN) specification containers, as required under 49CFR part 173 for transportation and disposal.

Mr. Gordon stated that many of the identified materials are actually items used for other purposes that are being stored in the warehouse areas of this building. Universal Waste's can be reused or relocated to other locations at the owner's discretion, so long as they are removed from the property prior to demolition as per the Salt Lake County Department of Environmental Health.

A post inspection of the disposition of the Universal Wastes must be made prior to the buildings demolition. The person conducting the post disposition inspection does not need to be certified by the Salt Lake County Health Department as a Pre-demolition Building Inspector. The post disposition inspection must be documented on the attached Salt Lake County Health Department Pre-demolition inspection form stating where the Universal Wastes were disposed, recycled, reused or relocated.

The estimated cost for the removal, packaging, transportation and proper waste disposal of these materials is **$ 9,842**. This estimate does not include design, or management fees.

Hazardous Materials Survey : Main Level Floor Plan



Explanation

- (5) Number and Location of mercury vapor-containing fluorescent light tubes (all fluorescent bulbs are 4-foot in length unless otherwise noted)
- Number and Location of PCB-containing fluorescent light fixture ballasts
- (4) Number and Location of mercury-containing thermostats
- NOTE: Quantity and Location of additional bulbs & ballasts

N

CLIENT INFO. Frank Edwards Building 100 South 300 West Salt Lake City, Utah	APPROXIMATE SCALE 30'	
	DRAWN BY: Murphy	PROJECT No.: 07A-1071
	DATE: April 26, 2007	CAD No.: 07A1071C

SALT LAKE VALLEY HEALTH DEPARTMENT

788 East Woodoak Lane, #120

Murray, Utah 84107 (801) 313-6700, (801) 313-6734 (fax)

Predemolition Building Inspecion Form

Residential / Business (circle one)

GENERAL INFORMATION

Inspection Date: 17-Apr-07 Bldg. Address: 100 South 300 west

City: Salt Lake City

Property Owner: Westgate Lofts Phone: (801) 533-8894

Address: 180 South 300 West, Suite 120

Salt Lake City, Utah 84101

Demolition Permit Applicant (if not owner):

Address: Phone:

INSPECTION RESULTS

List amounts present for each item

Mercury Thermostats: 2 theromostats Condition: Good

Mercury Fluorescent Lights: 506 tubes Condition: Good

PCB Ballasts or Transformers: 124 ballasts Condition: Good

Refrigeration Units Containing CFCs: 110 Self-contained Freon Units Condition: Good

Containers of Liquid or Hazardous Waste (include vehicular batteries): Condition: Good

(9) 55-gallon drums of kerosene, (1) 55-gallon drum of transmission oil, (~200) gallons of miscellaneous paints in containers ranging in size from 1 quart to 5 gallons, (~60) 5-gallon containers of deck coating and waterproofing product, ~20 gallons of miscellaneous oils, caulks, and adhesives, 10 vehicle tires, 1 vehicle battery.

Suspect Asbestos-Containing Material (ACM): 3 assumed lights with ACM wiring (Non-Friable ACM)

~ 400 sq. ft. of wall board with asbestos-containing joint compound present in it (Friable ACM)

~ 470 sq. ft. of 9" floor tile, (Non-friable)

~ 7,500 sq. ft. of built-up roofing material (Non-friable)

~ 450 ln. ft. of roofing tar sealant (Non-friable)

Signiture of Predemolition Building Inspector: John Murphy

Predemolition Building Inspector (Print name): John Murphy Regis.#: PBI- 14

FOLLOW-UP INSPECTION RESULTS

Date: Inspector:

Have all identified items been removed? Yes No None Present

if yes, attach disposal receipts or manifests to this form.

Disposition of Identified Items (Disposal or Recycling Facility)

Mercury Thermostats: Date:

Mercury Fluorescent Lights: Date:

PCB Ballasts/Transformers: Date:

Refrigeration Units w/CFCs: Date:

Containers of Liquid/Haz. Waste: Date:

ACM: Date:

Signature of Inspector: Date:

DO NOT WRITE IN THIS SECTION - FOR DEPARTMENT USE ONLY

Date Received: Approved? Yes No Approved by:

Reason for Denial:

Original Copy - Health Department One Copy - Building Owner One Copy - Inspector 4.21.99

Appendix D
Geotechnical Evaluation Report

GSH
Gordon Spilker Huber
Geotechnical Consultants, Inc.

REPORT
GEOTECHNICAL STUDY
PROPOSED MULTI-LEVEL HOTEL/RETAIL AND PARKING STRUCTURES
SOUTHWEST CORNER OF 100 SOUTH STREET AND 300 WEST STREET
SALT LAKE CITY, UTAH

Submitted To:

PEG Development
480 West 800 North, Suite 203
Orem, Utah 84057

Submitted By:

Gordon Spilker Huber Geotechnical Consultants, Inc.
4426 South Century Drive, Suite 100
Salt Lake City, Utah 84123

November 18, 2009

Job No. 0916-002-09

GSH
Gordon Spilker Huber
Geotechnical Consultants, Inc.

November 18, 2009
Job No. 0916-002-09

PEG Development
480 West 800 North, Suite 203
Orem, Utah 84057

Attention: Mr. Robert Schmidt

Gentlemen:

Re: Report
Geotechnical Study
Proposed Multi-Level Hotel/Retail and Parking Structures
Southwest Corner of 100 South Street and 300 West Street
Salt Lake City, Utah

1. INTRODUCTION

1.1 GENERAL

This report presents the results of our geotechnical study performed at the site of the proposed multi-level hotel/retail and parking structures, which is to be located on the southwest corner of 100 South Street and 300 West Street in Salt Lake City, Utah. The general location of the site with respect to major topographic features and existing facilities, as of 1999, is presented on Figure 1, Vicinity Map. A detailed layout of the site on an air photograph base showing the site boundaries is presented on Figure 2, Site Plan. The locations of the borings drilled in conjunction with this study are also presented on Figure 2.

During the course of this study, preliminary conclusions and recommendations were presented verbally to the owner and members of the design team.

1.2 OBJECTIVES AND SCOPE

The objectives and scope of our study were planned in discussions between Mr. Robert Schmidt of PEG Development, and Mr. Bill Gordon of Gordon Spilker Huber Geotechnical Consultants, Inc. (GSH).

In general, the objectives of this study were to:

1. Define and evaluate the subsurface soil and groundwater conditions across the site.

2. Provide earthwork, foundation, pavement, and geoseismic recommendations to be utilized in layout and design of the proposed facilities.

In accomplishing these objectives, our scope has included the following:

1. A field program consisting of the drilling, logging, and sampling of eight exploration borings.

2. A laboratory testing program.

3. An office program consisting of the correlation of available data, engineering analyses, and the preparation of this summary report.

1.3 AUTHORIZATION

Authorization was provided by Mr. Robert Schmidt of PEG Development for our Professional Services Agreement No. 09-0912rev1.

1.4 PROFESSIONAL STATEMENTS

Supporting data upon which our recommendations are based are presented in subsequent sections of this report. Recommendations presented herein are governed by the physical properties of the soils encountered in the exploration borings, projected groundwater conditions, and the layout and design data discussed in Section 2., Proposed Construction, of this report. If subsurface conditions other than those described in this report are encountered and/or if design and layout changes are implemented, GSH must be informed so that our recommendations can be reviewed and amended, if necessary.

Our professional services have been performed, our findings developed, and our recommendations prepared in accordance with generally accepted engineering principles and practices in this area at this time.

2. PROPOSED CONSTRUCTION

The proposed development will consist of two primary structures. The first will be an "L"-shaped up to six-level retail/residential structure, with the first level being established within one to two feet of existing grade. The first two levels will be of reinforced concrete construction. The upper four levels will be of wood-frame construction. The structure will step downslope, both to the south and west. Maximum steps will be on the order of three to four feet. Structural

loads will be transmitted down through bearing walls and columns to the supporting foundations. It is projected that the maximum real wall and column loads will be on the order of 15 to 20 kips per lineal foot and 400 to 600 kips, respectively. Real loads are defined as the total of all dead plus frequently applied (reduced) live loads. Floor slab loads will be light and generally not exceed an average uniform loading of 200 pounds per square foot.

The second will be a three- to four-level parking structure. The building will be established slab-on-grade and will be of reinforced concrete construction. Structural loads will be transmitted down through bearing walls and columns to the supporting foundations. It is projected that the maximum real wall and column loads for the structure will be on the order of 16 to 22 kips per lineal foot and 600 to 800 kips, respectively. At-grade floor slab loads will be light and generally not exceed an average uniform loading of 100 pounds per square foot. On-site runoff is proposed to be retained in a structure below the at-grade slab or ramps.

Site grading cuts and fills beneath the parking structure will be on the order of two to four feet.

It is our understanding the existing surface fills will be capped with a geotextile fabric and will be used as a marker layer.

Around the perimeter of the structures will be pavements for parking, loading/unloading, and overall development access. In the parking areas, traffic wili consist of a light volume of automobiles and light trucks and occasional medium-weight trucks. in the loading/unloading areas and access roadways, traffic will consist of a moderate volume of automobiles and light trucks, a light volume of medium-weight trucks, and occasional heavy-weight trucks.

Site development will consist of maximum cuts and fills not exceeding approximately two to four feet.

3. BACKGROUND

The site was previously utilized as an asbestos manufacturing facility. The facility was closed many years ago and the structures demolished. The site was subsequently leveled and is blanketed by approximately 5.5 to 10.5 feet of fill that contain minor amounts of asbestos. The fills were left in place but were capped with the existing parking lot pavement and structure.

Construction of the proposed buildings and installation of utilities will require some shallow excavation into the contaminated surface fill. Health and safety plans will be developed.

4. SITE INVESTIGATIONS

4.1 FIELD PROGRAM

In order to define and evaluate the subsurface soil and groundwater conditions across the site, 8 borings were drilled to depths ranging from 21 to 41 feet with an all-terrain drill rig equipped with hollow-stem augers. Locations of the borings are presented on Figure 2.

A health and safety plan was prepared for and followed during drilling operations. Cuttings from the fill sequence have been stored on site in labeled and capped five-gallon buckets.

The field portion of our study was under the direct control and continual supervision of an experienced member of our geotechnical staff. During the course of the drilling operations, a continuous log of the subsurface conditions encountered was maintained. In addition, relatively undisturbed and small disturbed samples of the typical soils encountered were obtained for subsequent laboratory testing and examination. The soils were classified in the field based upon visual and textural examination. These classifications have been supplemented by subsequent inspection and testing in our laboratory. Detailed graphical representation of the subsurface conditions encountered is presented on Figures 3A through 3H, Log of Borings. Soils were classified in accordance with the nomenclature described on Figure 4, Unified Soil Classification System.

A 3.25-inch outside diameter, 2.42-inch inside diameter drive sampler (Dames & Moore) was utilized in the subsurface soil sampling. Additionally, a 2.0-inch outside diameter, 1.38-ineh inside diameter drive sampler (SPT) was utilized at select locations and depths. The blow-counts recorded on the boring logs were those required to drive the sampler 12 inches with a 140-pound hammer dropping 30 inches.

in order to provide a means of monitoring groundwater fluctuations, one and one-quarter-inch diameter slotted PVC pipe was installed in Borings B-1, B-2, B-6, B-7, and B-8 upon completion of drilling.

4.2 LABORATORY TESTING

4.2.1 General

In order to provide data necessary for our engineering analyses, a laboratory testing program was performed. The program included moisture and density, partial gradation, consolidation, and chemical tests. Tests were performed upon natural soils and fills. The following paragraphs describe the tests and summarize the test results.

4.2.2 Moisture and Density Tests

To aid in classifying the soils and to provide index parameters, moisture and density tests were performed on selected undisturbed samples. The results of these tests are presented on the boring logs, Figures 3A through 3H.

4.2.3 Partiai Gradation Tests

To aid in classifying the soils, partial gradation tests were performed on selected undisturbed samples. The results of the tests are tabulated below:

Sieve Size	Percent Passing	
	B-1 @ 30'	B-2 @ 30'
No. 200	6.5	54.0
Soils Classification	SM/GM/SP/GP	SM*

* Finer-grained layer within a granular sequence

4.2.4 Consolidation Tests

To provide data necessary for our settlement analyses, a consolidation test was performed on each of six representative samples of the near-surface fine-grained cohesive soils. Three tests were performed on natural soils and three tests on the fills. The results of the tests indicate that the near-surface natural soils are all moderately over-consolidated and, when loaded below the preconsolidation pressure, will exhibit moderate compressibility characteristics. However, the sample from Boring B-3 at 15 feet is less highly over-consolidated and will exhibit moderately high compressibility characteristics.

The results of the tests indicate that the fills exhibit variable and, in most cases, poor engineering characteristics. It should be noted, two of the consolidation tests performed on the fills were saturated at an equivalent floor slab loading and also exhibit variable engineering characteristics. Detailed results of the tests are maintained within our files and can be transmitted to you, upon your request.

4.2.5 Chemical Tests

To determine if the site soils will react detrimentally with concrete, chemical tests were performed on a representative sample of the silty clay fills. The results of the chemical tests are tabulated on the following page.

Boring No.	Depth (feet)	pH	Total Water Soluble Sulfate (mg-kg-dry)	Soil Classification
B-4	5.0	8.37	390	CL – Fill

5. SITE CONDITIONS

5.1 SURFACE

The site is located at the southwest corner of 100 South Street and 300 West Street in Salt Lake City, Utah. The site is bounded by an existing structure to the south. A power substation bounds the site to the west. Both one-level structures are established slab-on-grade.

The majority of the site is covered with an existing asphalt concrete parking lot. The existing pavements are in fair condition. Also, an existing one-extended-level slab-on-grade warehouse is located in the northeast corner of the site.

The surface slopes gently down to the southwest. Overall relief across the site is on the order of 10 to 12 feet.

5.2 SUBSURFACE SOIL AND GROUNDWATER

Subsurface conditions encountered in the exploration borings are somewhat variable. At all of the boring locations, a three- to four-inch layer of asphalt concrete underlain by three to four inches of roadbase was encountered.

The pavement sections are, in turn, underlain by silty clay/silty sand and gravel fills. The fills extend to depths of 5.5 to 10.5 feet below grade at the boring locations and exhibit variable and, in most cases, poor engineering characteristics. Depths of the fills at the boring locations are presented on Figure 2.

The subsurface conditions have some variability in the upper 20 feet. Generally, the surficial fills are underlain by natural silty clays that extend to depths of 9 to 20 feet below grade. The clays are brown, moist, medium stiff to very stiff, and will exhibit moderate strength and moderately to moderately high compressibility characteristics.

In general, the silty clays are underlain silty sands and gravels/sands and gravels with some silt that extend to the depths explored, 21 to 41 feet. The sands and gravels are brown, moist to saturated, loose to very dense, and will exhibit relatively high strength and low compressibility characteristics.

The lines designating the interface between soil types on the boring logs generally represent approximate boundaries. In-situ, the transition between soil types may be gradual.

Groundwater levels are tabulated below:

Boring No.	Groundwater Depth (feet)	
	October 28 & 29, 2009	November 5, 2009
B-1	28.8	29.0
B-2	33.0	30.9
B-3	NGWE to 21.0	No PVC pipe installed
B-4	NGWE to 21.0	No PVC pipe installed
B-5	NGWE to 21.0	No PVC pipe installed
B-6	NGWE to 21.0	NGWE to 21.0
B-7	NGWE to 21.0	NGWE to 21.0
B-8	NGWE to 21.0	NGWE to 21.0

NGWE No groundwater encountered.

Seasonal and longer-term groundwater fluctuations on the order of one to two feet should be anticipated with the highest levels occurring during the late spring and summer months.

6. DISCUSSIONS AND RECOMMENDATIONS

6.1 SUMMARY OF FINDINGS

The most significant geotechnical aspects of the site are:

1. Non-engineered fills which were encountered in each of the borings to depths ranging from 5.5 to 10.5 feet.

2. The fills will exhibit variable and, in most cases, poor engineering characteristics.

Additionally, the fills are environmentally contaminated. This contamination will influence the foundation types selected.

Regardless of the surface fills, the results of this study show that both structures can be supported upon conventional spread and continuous wall foundations. For light to moderately lightly

loaded foundations, the footings must be underlain by varying thicknesses of granular structural fill extending to the natural soils underlying the existing surface fills. For the more heavily loaded foundations, the soils to a depth of 12 to 14 feet must be improved by installing Geopiers® or other similar systems.

Since the existing surface fills exhibit variable and generally very poor engineering characteristics, Geopiers® and other similar systems are also recommended beneath the at-grade building slabs.

Conventional Geopiers® are 30 inches in diameter. The surface fills penetrated would have to be handled as contaminated soils. A newer Geopiers® system results in granular columns approximately 12 inches in diameter with no cuttings.

An alternate would be to remove the fills and replace them with structural fill.

In our analyses, the utilization of deep foundations, such as drilled piers and piles, were also evaluated. Preliminary evaluations indicate that the deep foundations would be more costly.

Ultimately, cost will be a primary factor in selecting the foundation system.

Over-excavation will not be required beneath pavements. Some cuts, however, must be anticipated to obtain desired grade.

In the following sections, detailed discussions pertaining to earthwork, foundations, pavements, and the geoseismic setting of the site are provided.

6.2 EARTHWORK

6.2.1 Site Preparation

Preparation of the site for construction must include the complete removal of existing structures, foundations, all debris, rubble, and concrete flatwork beneath an area extending at least three feet beyond the perimeter of the proposed buildings, perimeter exterior flatwork, and rigid pavement areas.

Because of environmental concerns, it is our understanding that "working" of the surface fills will be minimized. In addition, removal of the surface fills from the site will be costly.

It is recommended that the fills beneath the building slabs and immediately adjacent perimeter concrete flatwork be improved with Geopiers® or similar systems. Prior to the placement of structural fills, floor slabs, and concrete pavements, the upper nine inches of the fills must be scarified, moisture prepared, and compacted to the requirements of structural fill.

In the proposed flexible pavement, exterior flatwork, and garage slab areas, preparation should consist of the removal of surface vegetation, topsoil, and other deleterious materials from beneath an area extending at least three feet beyond the perimeter. In pavement areas, the existing asphalt concrete and fills may remain provided that they do not interfere with the final grade. However, the asphalt concrete should be perforated to facilitate drainage and proofrolled. If the asphalt concrete, exterior flatwork, and garage slab areas are removed from the proposed flexible pavement, the underlying fills must contain no degradable material, and the upper nine inches scarified, moisture prepared, and compacted to the requirements for structural fill. Debris, associated vegetation, and other deleterious materials should be removed from the site. Even with proper preparation, pavements established overlying non-engineered fills may encounter some long-term movements unless the non-engineered fills are completely removed or the subgrade improved.

Surface vegetation and other deleterious materials should generally be removed from the site. Topsoil, although unsuitable for utilization as structural fill, may be stockpiled for subsequent landscaping purposes.

Prior to initiation of any earthwork, an appropriate health and safety program must be developed.

6.2.2 Excavations

Temporary construction excavations, not exceeding four feet in depth and not encountering the groundwater table, may be constructed with near-vertical sideslopes. If cohesive soils and groundwater are encountered, near-vertical sideslopes may still be used. Temporary excavations up to eight feet deep in fine-grained cohesive soils, above or below the water table, may be constructed with sideslopes no steeper than one-half horizontal to one vertical. Excavations deeper than eight feet are not anticipated.

For excavations up to eight feet, in granular soils and above the water table, the slopes should be no steeper than one horizontal to one vertical. Excavations encountering saturated cohesionless soils will be very difficult and will require very flat sideslopes and/or shoring and bracing.

All excavations must be inspected periodically by qualified personnel. If any signs of instability or excessive sloughing are noted, immediate remedial action must be initiated.

6.2.3 Structural Fill

Structural fill will be required as site grading fill and as backfill over foundations and utilities. Around foundations and for near-surface grading, we recommend an imported mixture of well-graded sands and gravels, generally containing no more than 18 percent fines, be utilized. The maximum particle size should generally be restricted to two and one-half inches.

Structural fill placed below a level one foot above the water table at the time of construction on the soft subgrade must consist of a mixture of clean coarse gravel and cobbles or one to two-inch

minus clean gap-graded crushed angular gravels. The on-site sand and gravel soils meeting the above requirements are suitable as structural fill. On-site natural clayey material can also be used as structural fill; however, this will be very difficult, if not impossible, during wet and cold periods of the year. In confined areas, only predominantly granular soils meeting the above requirements for imported structural fill are recommended as structural fill.

6.2.4 Fill Placement and Compaction

Coarse gravels and cobbles, when used for subgrade stabilization, should be end-dumped and placed to a loose lift thickness of no more than 12 inches. Each lift should then be compacted by dropping a backhoe bucket uniformly over the section at least three times. The first lift of the backfilled sands and gravels placed over open-graded gravels must be "worked into" the voids to reduce the possibility of long-term infiltration and subsidence.

All structural fill should be placed in lifts not exceeding eight inches in loose thickness. Fills up to 10 feet thick must be compacted to at least 95 percent of the maximum dry density as determined by the AASHTO[1] T-180 (ASTM[2] D-1557) compaction criteria. Structural fills greater than 10 feet are not anticipated at the site. Fills less than 5 feet thick, which are not beneath an area extending out at least 3 feet from the perimeter of the structures, should be compacted to at least 90 percent of the above-defined criteria.

Subsequent to stripping and prior to the placement of structural site grading fill, the subgrade should be prepared as discussed in Section 6.2.1, Site Preparation, of this report. In confined areas, subgrade preparation should consist of the removal of all loose or disturbed soils.

6.2.5 Utility Trenches

All utility trench backfill material below structurally loaded facilities (flatwork, floor slabs, roads, etc.) should be placed at the same density requirements established for structural fill. If the surface of the backfill becomes disturbed during the course of construction, the backfill should be proofrolled and/or properly compacted prior to the construction of any exterior flatwork over a backfilled trench. Proofrolling may be performed by passing moderately loaded rubber tire-mounted construction equipment uniformly over the surface at least twice. If excessively loose or soft areas are encountered during proofrolling, they should be removed to a maximum depth of two feet below design finish grade and replaced with structural fill.

Most utility companies and City-County governments are now requiring that Type A-1 or A-1a (AASHTO Designation – basically granular soils with limited fines) soils be used as backfill over utilities. These organizations are also requiring that in public roadways the backfill over major utilities be compacted over the full depth of fill to at least 96 percent of the maximum dry density as determined by the AASHTO T-180 (ASTM D-1557) method of compaction. We

---

1 American Association of State Highway and Transportation Officials
2 American Society for Testing and Materials

recommend that as the major utilities continue onto the site that these compaction specifications are followed.

The natural fine-grained cohesive soils are not recommended for use as trench backfill.

6.3 FOUNDATIONS

6.3.1 General

In conjunction with this study, we initially evaluated the feasibility of supporting the proposed structures upon conventional spread and continuous wall foundations established over undisturbed natural soils. Our analysis indicates that loads up to 200 kips could be supported on conventional spread and continuous wall foundations established on replacement granular fills. For higher load, the thickness of replacement granular fill becomes prohibitive. Additionally, clays exhibit a moderately high compressibility under these higher loads. To improve the soils so that conventional spread and continuous wall foundations can be used, it is our recommendation that Geopiers® (or equivalent system) be installed. Utilizing Geopiers® in the fills and silty clay soils would allow for the support of higher loads associated with the structures.

6.3.2 Geopiers® and Spread and Continuous Wall Foundations

6.3.2.1 Design Data

The conventional Geopiers® soil reinforcement elements are constructed by drilling a 24- or 30-inch diameter hole and then building a bottom bulb of clean, open-graded stone using a beveled, high-energy tamper. The Geopiers® shaft is constructed on top of the bottom bulb using well-graded highway base course stone placed in thin lifts (12 inches compacted thickness). With this procedure only, the fill portions of the subsurface sequence penetrated would have to be handled as contaminated soil. Newer procedures are such that the soil sequence penetrated is compressed/consolidated in-situ with minimal excavated soil. The result of construction is a reinforced zone of soil directly under footings that allows for the construction of shallow spread footings proportioned for a relatively high bearing pressure. Geopiers® elements are spaced individually under continuous footings or in close groups to support concentrated column loads.

Geopiers® soil reinforcement should be designed and constructed by an installer licensed by the Geopiers® Foundation Company, Inc. The installer should provide a Geopiers® layout and detailed design calculations sealed by a professional engineer licensed in the State of Utah. The design calculations should demonstrate that Geopiers® soil reinforcement is designed to control settlement to magnitudes within the criteria for this project.

The local contact for Geopiers® is Mr. David Plehn (801-269-8012). Final design will be provided by Geopiers® or through a licensed installer.

For the design of conventional spread and continuous wall foundation over Geopiers®, the following parameters are provided:

Minimum Recommended Depth of Embedment for Frost Protection	- 30 inches
Minimum Recommended Depth of Embedment for Non-frost Conditions	- 15 inches
Recommended Minimum Width for Continuous Wall Footings	- 18 inches
Minimum Recommended Width for Isolated Spread Footings	- 24 inches
Net Bearing Pressure for Real Load Conditions	
Footings Overlying Conventional Geopiers®	- Typically 6,000 to 7,000 pounds per square foot*
Footings Overlying New Geopiers® System	- Typically 5,000 to 6,000 pounds per square foot*

* To be developed by Geopiers®

The term "net bearing pressure" refers to the pressure imposed by the portion of the structure located above lowest adjacent final grade. Therefore, the weight of the footing and backfill to lowest adjacent final grade need not be considered. Real loads are defined as the total of all dead plus frequently applied live loads. Total load includes all dead and live loads, including seismic and wind.

6.3.2.2 Installation

Where Geopiers® are utilized; foundations must be established directly upon the undisturbed tops of the pier systems. Prior to installing Geopiers®, all site grading activities should be completed.

Unsuitable soils shall be completely removed beneath footings. Under no circumstances shall the footings be installed overlying soft or disturbed soils, non-engineered fill, deleterious material, frozen soil, or within ponded water.

If the natural soils upon which the footings are to be established become loose or disturbed, they shall be recompacted to the requirements for structural fill or be removed and replaced with structural fill.

6.3.2.3 Settlements

Maximum settlements of foundations designed and installed over Geopiers® should be less than one-inch for loads up to 800 kips. However, these estimates will be refined with the design of the system.

6.3.3 SPREAD AND CONTINUOUS WALL FOUNDATIONS

6.3.3.1 Design Data

Relatively lightly loaded foundations can be supported upon conventional spread and continuous wall footings underlain by varying thicknesses of granular structural fill.

For these conditions, the following design parameters are presented:

Minimum Recommended Depth of Embedment for Frost Protection	- 30 inches
Minimum Recommended Depth of Embedment for Non-frost Conditions	- 15 inches
Recommended Minimum Width for Continuous Wall Footings	- 18 inches
Minimum Recommended Width for Isolated Spread Footings	- 24 inches
Recommended Net Bearing Pressure for Real Load Conditions (Lightly Loaded Foundation)	- 3,000 pounds per square foot*
Bearing Pressure Increase for Seismic Loading	- 50 percent

* See Section 6.3.3.3, Settlements for the thickness of granular fill beneath footings.

The term "net bearing pressure" refers to the pressure imposed by the portion of the structure located above lowest adjacent final grade. Therefore, the weight of the footing and backfill to lowest adjacent final grade need not be considered. Real loads are defined as the total of all dead

plus frequently applied live loads. Total load includes all dead and live loads, including seismic and wind.

6.3.3.2 Installation

Under no circumstances should the footings be underlain by loose or disturbed soils, sod, rubbish, non-engineered fill, construction debris, frozen soil, or other deleterious materials. As previously recommended, footings must be underlain by varying thicknesses of granular soils. Width of replacement granular fill should be equal to the width of the footing plus one foot for each foot of fill thickness.

6.3.3.3 Settlements

Projected settlements of relatively lightly loaded footings and the amount of underlying granular fill to control settlements are tabulated below:

Foundation Type	Load	Minimum Thickness of Natural Granular Soils and/or Granular Structural Fill Beneath Footings* (feet)	Projected Ultimate Settlement (inches)
Spread	Up to 120 kips	0.0	¼ to ⅜
	120+ to 200 kips	1.5	⅜ to ⅝
Continuous Wall	Up to 9 kips per lineal foot	0.0	⅜ to ⅝
	9+ to 12 kips per lineal foot	1.5	⅝ to ⅝

* Structural fill must also penetrate to the natural soils.

Settlements should occur rapidly with 60 to 70 percent occurring during construction.

6.4 LATERAL PRESSURES

The following lateral pressure parameters are for short walls, such as elevator pits and grade transitions.

The lateral pressure parameters, as presented within this section, assume that the backfill extending at least five feet from the back of the wall be properly placed and compacted granular soil. The lateral pressures imposed upon subgrade facilities will, therefore, be basically dependent upon the relative rigidity and movement of the backfilled structure. For active walls, such as retaining walls which can move outward (away from the backfill), granular backfill may

be considered equivalent to a fluid with a density of 45 pounds per cubic foot in computing lateral pressures.

The above equivalent fluid pressures are for static loading conditions. For seismic loading for walls up to 4 feet high, a uniform pressure of 80 pounds per square foot should be added. It should be noted that the lateral pressures as quoted assume that the backfill materials will not become saturated. If the backfill becomes saturated, the above values may be decreased by one-half; however, full hydrostatic water pressures will have to be included.

6.5 FLOOR SLABS

Under no circumstances should floor slabs be established over non-engineered fill, pavements, loose or disturbed soils, sod, rubbish, construction debris, other deleterious materials, frozen soils, or within ponded water.

Given the environmental concerns and the variable and, in most cases poor, engineering characteristics associated with the non-engineered fills, the floor slabs could be supported upon more widely spaced Geopiers® (12 foot centers). The Geopiers would extend through the non-engineered fills (5.5 to 10.5 feet).

As an alternative, the floor slabs could be established on 18 inches of granular structural fill. Additionally, the floor slabs would need to be heavily reinforced.

To facilitate construction and to provide a capillary moisture break, we recommend that all at-grade slabs be immediately underlain by a minimum of four inches of "free-draining" granular material, such as "pea" gravel or three-quarters- to one-inch minus clean gap-graded gravel. The gravel may be placed directly upon properly prepared suitable natural soils and/or structural fill.

Settlements of lightly loaded floor slabs will be negligible.

6.6 PAVEMENTS

Pavements will be required for parking areas, loading/unloading docks, and primary roadways. The pavements would be established over the existing non-engineered fills. Thus, it must be anticipated that some long-term differential settlements of the pavements will occur. These could be on the order of one or two inches, have a low angle of distortion, and, therefore, not severely impact the performance of the pavements. If a concrete section is used; such as for loading/unloading garage ramps, it must be reinforced. The proposed six inches of inert fill and geotextile fabric will help the proposed pavement sections.

The recommended pavement sections are as follows:

Primary Roadways

(Moderately Light Volume of Automobiles and Light Trucks
and a Light Volume of Medium- and Heavy-Weight Trucks)
[5 equivalent 18-kip axle loads per day]

3.0 inches	Asphalt concrete
8.0 inches	Aggregate base course
Over	Properly prepared non-engineered fill (9 inches scarified and recompacted), natural subgrade soils, and/or structural site grading fill extending to natural subgrade soils

Parking Areas

(Light Volume of Automobiles and Light Trucks,
Occasional Medium-Weight Trucks,
No Heavy-Weight Trucks)
[1 equivalent 18-kip axle loads per day]

2.5 inches	Asphalt concrete
7.0 inches	Aggregate base course
Over	Properly prepared non-engineered fill (9 inches scarified and recompacted), natural subgrade soils, and/or structural site grading fill extending to natural subgrade soils

Loading/Unloading Ramp Areas

(Light Volume of Medium- and Heavy-Weight Trucks)

6.0 inches	Portland cement concrete (reinforced)
5.0 inches	Aggregate base course
Over	Properly prepared non-engineered fill (9 inches scarified and recompacted), natural subgrade soils, and/or structural site grading fill extending to natural subgrade soils*

* Long-term differential settlements will develop beneath these pavements due to the variability of the non-engineered fills. This will result in cracking of the concrete slab, which is why reinforcing is recommended.

The above rigid pavement sections are for reinforced Portland cement concrete. Construction of the rigid pavement should be in sections 10 to 12 feet in width with construction or expansion joints or one-quarter depth saw-cuts on no more than 12-foot centers. Saw-cuts must be completed within 24 hours of the "initial set" of the concrete and should be performed under the direction of the concrete paving contractor. The concrete should have a minimum 28-day unconfined compressive strength of 4,000 pounds per square inch and contain 6 percent ±1 percent air-entrainment.

6.7 CEMENT TYPES

Laboratory tests indicate that the site soils contain negligible amounts of water soluble sulfates. Therefore, all concrete which will be in contact with the site soils may be prepared using Type I or IA cement.

6.8 GEOSEISMIC SETTING

6.8.1 General

Utah municipalities adopted the International Building Code (IBC) 2006 on January 1, 2007. The IBC 2006 code determines the seismic hazard for a site based upon 2002 mapping of bedrock accelerations prepared by the United States Geologic Survey (USGS) and the soil site class. The USGS values are presented on maps incorporated into the IBC code and are also available based on latitude and longitude coordinates (grid points).

The structures must be designed in accordance with the procedure presented in Section 1613, Earthquake Loads, of the IBC 2006 edition.

6.8.2 Faulting

Based upon our review of available literature, no active faults are known to pass through or immediately adjacent to the site. The site is located outside fault investigation zones identified by Salt Lake County. The nearest active fault is the Warm Springs segment of the Wasatch fault approximately one-quarter mile east of the site. The Wasatch fault zone is considered capable of generating earthquakes as large as magnitude 7.3[3].

6.8.3 Soil Class

For dynamic structural analysis, the Site Class D - Stiff Soil Profile as defined in Table 1613.5.2, Site Class Definitions, of the IBC 2006 can be utilized.

6.8.4 Ground Motions

The IBC 2006 code is based on 2002 USGS mapping, which provides values of short and long period accelerations for the Site Class B-C boundary for the Maximum Considered Earthquake (MCE). This Site Class B-C boundary represents a hypothetical bedrock surface and must be corrected for local soil conditions. The following table summarizes the peak ground and short and long period accelerations for a MCE event and incorporates a soil amplification factor for a Site Class D soil profile in the second column. Based on the site latitude and longitude (40.7666 degrees north and 111.9007 degrees west, respectively), the values for this site are tabulated below:

Spectral Acceleration Value, T Seconds	Site Class B-C Boundary [mapped values] (% g)	Site Class D [adjusted for site class effects] (% g)
Peak Ground Acceleration	69.3	69.3
0.2 Seconds, (Short Period Acceleration)	S_S = 173.4	S_{MS} = 173.4
1.0 Seconds (Long Period Acceleration)	S_1 = 70.4	S_{M1} = 105.6

The IBC 2006 code design accelerations (S_{DS} and S_{D1}) are based on multiplying the above accelerations (adjusted for site class effects) for the MCE event by two-thirds (⅔).

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[3] Arabasz, W.J., Pechmann, J.C., and Brown, E.D., 1992, Observational seismology and the evaluation of earthquake hazards and risk in the Wasatch Front area, Utah, in Gori, P.L., and Hays, W.W., eds., Assessment of regional earthquake hazards and risk along the Wasatch Front, Utah: U.S. Geological Survey Professional Paper 1500-D, 36 p.

6.8.5 Liquefaction

The site is located in an area that has been identified by Salt Lake County as having a "very low" liquefaction potential. Liquefaction is defined as the condition when saturated, loose, finer-grained sand-type soils lose their support capabilities because of excessive pore water pressure which develops during a seismic event.

Analyses indicate isolated zones of the saturated granular soils in Borings B-1 and B-2 could liquefy under the design seismic event. Maximum anticipated settlement resulting from the liquefaction would be in the range of one-quarter to three-quarters of inch. Because of the depth of the potentially liquefiable soils and their limited thickness, analyses indicate that surface ground rupture should not occur. The liquefiable zones are not continuous; therefore, lateral spread should not occur. For most facilities, the owners and designers have taken the philosophy that it is more economical to design the buildings to tolerate these types of differential movements and provide life safety than it would be to remediate the subsurface sequence to reduce the potential for liquefaction-induced differential settlements.

Calculations performed used the procedures described in NCEER-97-0022 entitled, "Proceedings of the NCEER Workshop on Evaluation of Liquefaction Resistance of Soils," and only apply to the saturated cohesionless deposits.

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We appreciate the opportunity of providing this service for you. If you have any questions or require additional information, please do not hesitate to contact us.

Respectfully submitted,

GSH Geotechnical Consultants, Inc.

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Professional Engineer

Reviewed by:

William J. Gordon, State of Utah No. 146417
Professional Engineer

JMW/WJG:sn

Encl. Figure 1, Vicinity Map
Figure 2, Site Plan
Figures 3A through 3H, Log of Borings
Figure 4, Unified Soil Classification System

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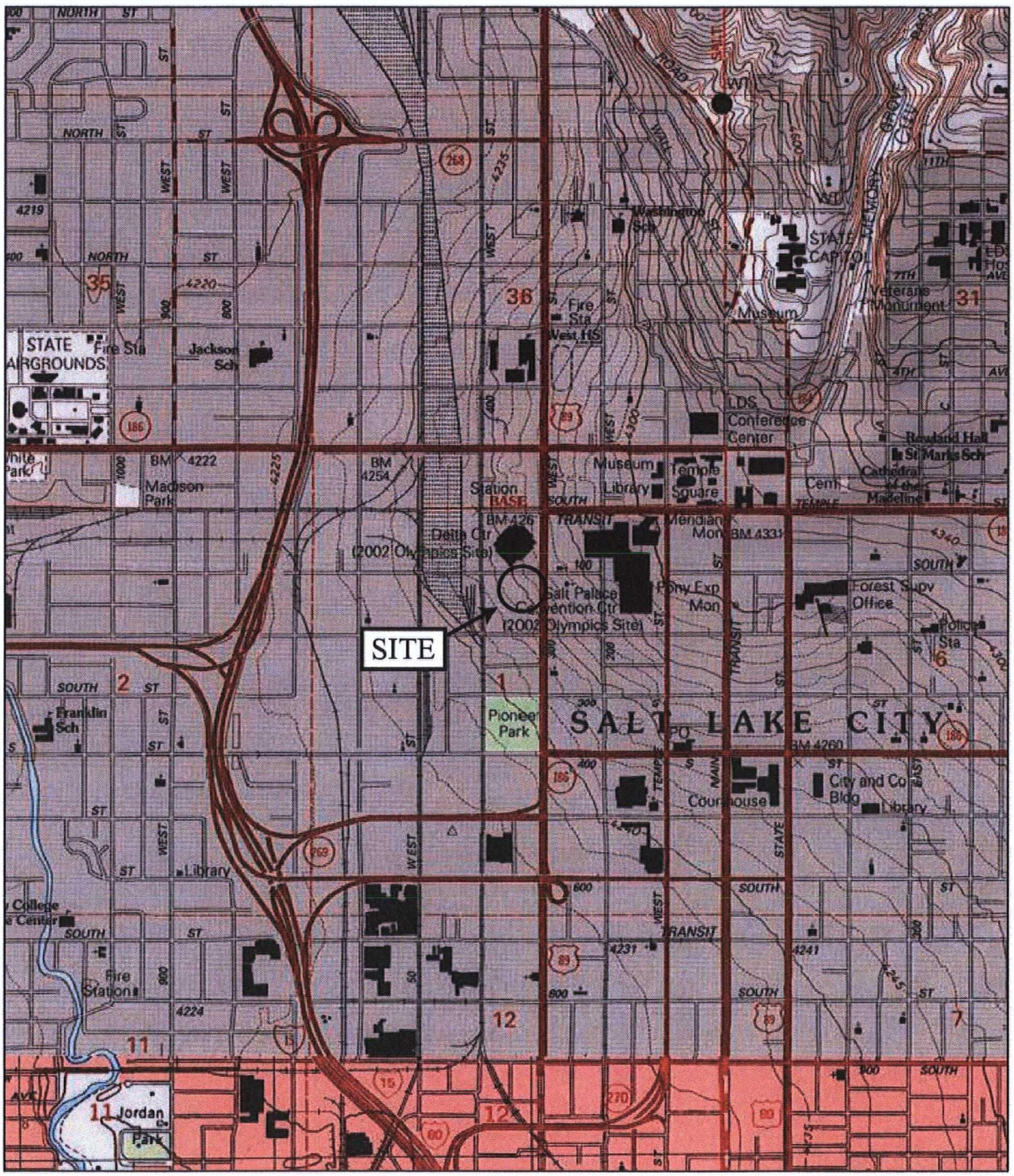
Salt Lake City, Utah 84101-2610

PEG DEVELOPMENT
JOB NO. 0916-002-09



SCALE IN FEET
1000 0 1000 2000

FIGURE 1
VICINITY MAP

REFERENCE:
USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE MAPS
TITLED "SALT LAKE CITY NORTH, UTAH" AND
"SALT LAKE CITY SOUTH, UTAH" DATED 1999

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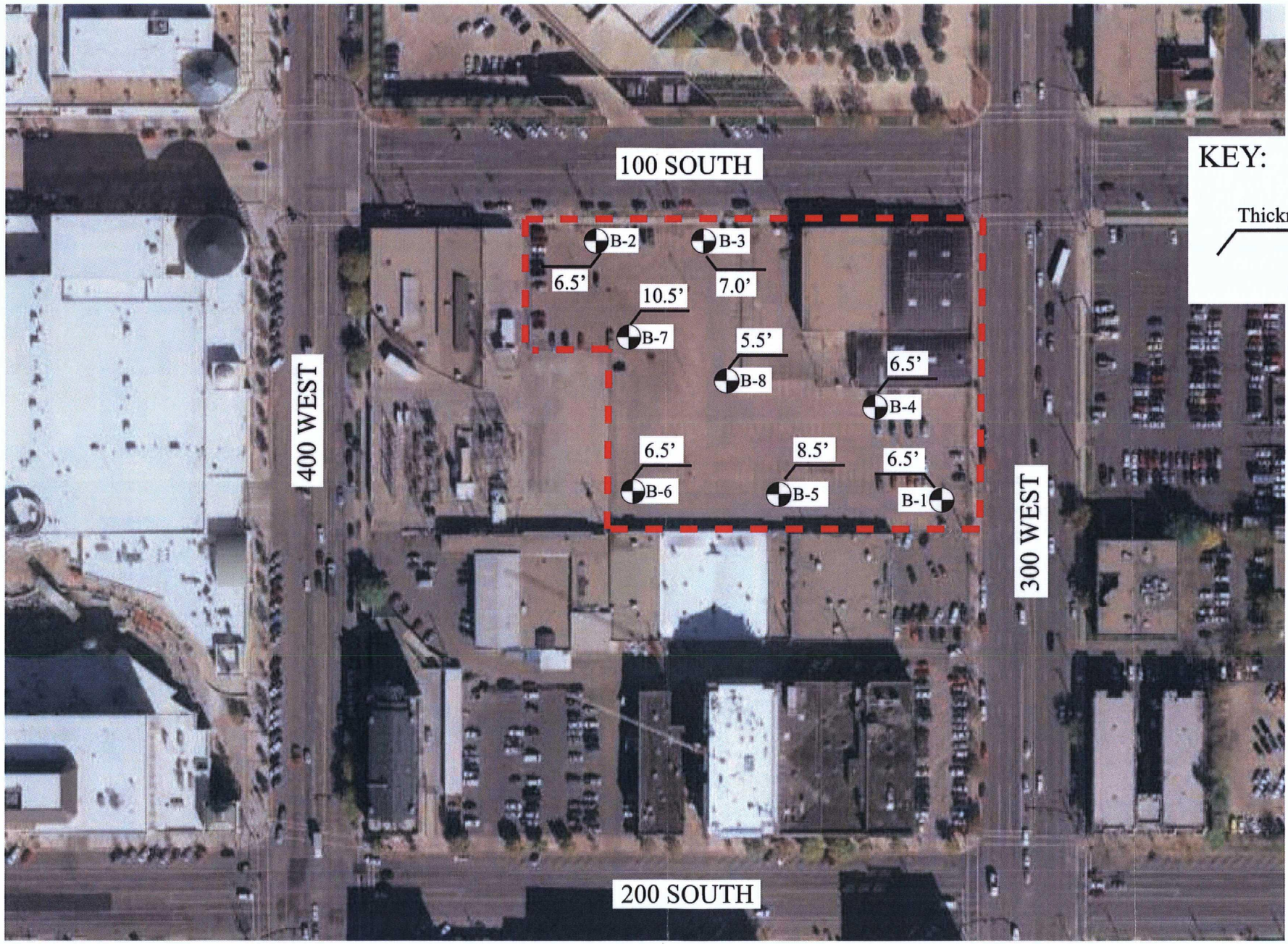
JOB NO. 0916-002-09



KEY:

Thickness of Surficial Fill (feet)

NOT TO SCALE

REFERENCE:
ADAPTED FROM AERIAL PHOTOGRAPH
DOWNLOADED FROM 2009 GOOGLE EARTH

FIGURE 2
SITE PLAN

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BOREHOLE B-1

Project Name: Multi-Level Hotel/Retail & Parking Structures
Project No.: 0916-002-09
Location: SW Cnr of 100 S & 300 W, Salt Lake City, Utah
Client: PEG Development
Drilling Method: 3-3/4" ID Hollow-Stem Auger
Date Drilled: 10-28-09 GSH Eicid Rep.: PRE
Elevation: - -
Water Level: 28.8' (10-28-09) 29.0' (11-05-09)
Remarks:

Graphical Log	Water Level	DESCRIPTION	DEPTH FT.	BLOWS/FT	SAMPLE SYMBOL	MOISTURE (%)	% PASSING 200	DRY DENSITY (PCF)	Liquid Limit (%)	Plastic Limit (%)	REMARKS
		Ground Surface	0								
		3" ASPHALT CONCRETE									
		3" ROADBASE, FILL silty fine to coarse sand and fine gravel, brown (SM/GM-FILL)									moist medium dense
		SILTY FINE TO COARSE SAND AND FINE AND COARSE GRAVEL, FILL brown (SM/GM-FILL)		65							
		SILTY CLAY, FILL with some fine to coarse sand; brown (CL-FILL)	5	11							moist medium stiff/stiff
		SILTY CLAY with trace fine gravel and some fine sand; brown (CL)									moist stiff/very stiff
			10	22							
		grades with occasional layers up to 2" thick of silty fine sand	15	9							medium stiff
		FINE TO COARSE SAND AND FINE AND COARSE GRAVEL with some silt; brown (SP/SM/GP/GM)	20	114							moist very dense
			25								

The discussion in the text under the section titled, SUBSURFACE CONDITIONS, is necessary for a proper understanding of the nature of the subsurface material.

FIGURE 3A

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Salt Lake City, Utah 84123

Project Name: Multi-Level Hotel/Retail & Parking Structures
Project No.: 0916-002-09
Location: SW Cnr of 100 S & 300 W, Salt Lake City, Utah
Client: PEG Development
Drilling Method: 3-3/4" ID Hollow-Stem Auger
Date Drilled: 10-28-09 GSH Field Rep.: PRE
Elevation: - -
Water Level: 28.8' (10-28-09) 29.0' (11-05-09)
Remarks:

Graphical Log	Water Level	DESCRIPTION	DEPTH FT.	BLOWS/FT	SAMPLE SYMBOL	MOISTURE (%)	% PASSING 200	DRY DENSITY (PCF)	Liquid Limit (%)	Plastic Limit (%)	REMARKS
	▼	drilling indicates clay		48							medium dense
		FINE TO COARSE SAND AND FINE AND COARSE GRAVEL with some silt, brown (SM/GM/SP/GP)	30	36		9.1	6.5				saturated medium dense
			35	76							dense
			40	81							
		Stopped drilling at 39.5'. Stopped sampling at 41.0'. Installed 1-1/4" diameter slotted PVC pipe to 41.0'.	45								
			50								

The discussion in the text under the section titled, SUBSURFACE CONDITIONS, is necessary for a proper understanding of the nature of the subsurface material.

FIGURE 3A
(con't)

Gordon Spilker Huber Geotechnical Consultants, Inc.
Salt Lake City, Utah 84123

BOREHOLE B-2

Project Name: Multi-Level Hotel/Retail & Parking Structures
Project No.: 0916-002-09
Location: SW Cnr of 100 S & 300 W, Salt Lake City, Utah
Client: PEG Development
Drilling Method: 3-3/4" ID Hollow-Stem Auger
Date Drilled: 10-28-09 GSH Field Rep.: PRE
Elevation: - -
Water Level: 33.0' (10-28-09) 30.9' (11-05-09)
Remarks:

DESCRIPTION	DEPTH FT.	BLOWS/FT	SAMPLE SYMBOL	MOISTURE (%)	% PASSING 200	DRY DENSITY (PCF)	Liquid Limit (%)	Plastic Limit (%)	REMARKS
Ground Surface	0								
3" ASPHALT CONCRETE									
3" ROADBASE, FILL silty fine to coarse sand and fine gravel, brown (SM/GM-FILL)									moist medium stiff
SILTY CLAY, FILL with some fine sand and fine gravel, dark brown (CL-FILL)		10							
grades with some fine to coarse sand and fine gravel.	5	24							very stiff
FINE TO COARSE SAND AND FINE GRAVEL with some silt; brown (SP/SM/GP/GM)	10	21							moist loose
SILTY CLAY with some fine sand; dark brown (CL)	15	14							moist stiff
FINE TO COARSE SAND AND FINE GRAVEL with some silt, brown (SP/GP/SM/GM)	20	34							moist medium dense
	25								moist loose

The discussion in the text under the section titled, SUBSURFACE CONDITIONS, is necessary for a proper understanding of the nature of the subsurface material.

FIGURE 3B

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Salt Lake City, Utah 84123

BOREHOLE B-2

Project Name: Multi-Level Hotel/Retail & Parking Structures
Project No.: 0916-002-09
Location: SW Cnr of 100 S & 300 W, Salt Lake City, Utah
Client: PEG Development
Drilling Method: 3-3/4" ID Hollow-Stem Auger
Date Drilled: 10-28-09 GSH Field Rep.: PRE
Elevation: - -
Water Level: 33.0' (10-28-09) 30.9' (11-05-09)
Remarks:

Graphical Log	Water Level	DESCRIPTION	DEPTH FT.	BLOWS/FT	SAMPLE SYMBOL	MOISTURE (%)	% PASSING 200	DRY DENSITY (PCF)	Liquid Limit (%)	Plastic Limit (%)	REMARKS
		SILTY FINE SAND with numerous layers up to 2" thick of silty clay with some fine sand, dark brown (SM)		11							
			30	32		24.4	5.4				moist medium dense
	▼	**FINE TO COARSE SAND AND FINE GRAVEL** with some silt; brown (GM/SM/GP/SP)									saturated dense
			35	88							
			40	54							medium dense
		Stopped drilling at 39.5'. Stopped sampling at 41.0'. Installed 1-1/4" diameter slotted PVC pipe to 41.0'.	45								
			50								

The discussion in the text under the section titled, SUBSURFACE CONDITIONS, is necessary for a proper understanding of the nature of the subsurface material.

FIGURE 3B
(con't)

Gordon Spilker Huber Geotechnical Consultants, Inc.
Salt Lake City, Utah 84123

BOREHOLE B-3

Project Name: Multi-Level Hotel/Retail & Parking Structures
Project No.: 0916-002-09
Location: SW Cnr of 100 S & 300 W, Salt Lake City, Utah
Client: PEG Development
Drilling Method: 3-3/4" ID Hollow-Stem Auger
Date Drilled: 10-28-09 GSH Field Rep.: PRE
Elevation: - -
Water Level: No groundwater encountered (10-28-09)
Remarks:

Graphical Log	Water Level	DESCRIPTION	DEPTH FT.	BLOWS/FT	SAMPLE SYMBOL	MOISTURE (%)	% PASSING 200	DRY DENSITY (PCF)	Liquid Limit (%)	Plastic Limit (%)	REMARKS
		Ground Surface	0								
		3" ASPHALT CONCRETE									
		3" ROADBASE, FILL silty fine to coarse sand and fine gravel, brown (SM/GM-FILL)									moist stiff
		SILTY CLAY, FILL with some fine to coarse sand, dark brown (CL-FILL)		12							
			5								
				11							moist loose
		SILTY FINE SAND with occasional layers up to 2" thick of silty clay; brown (SM)									loose
			10	12							moist stiff
		SILTY CLAY with some fine to coarse sand, brown (CL)									
		grades with occasional layers up to 1" thick of silty fine sand	15	7		21 9		90			mecium stiff
		SILTY FINE SAND hrown (SM)	20	12							moist loose
		Stopped drilling at 19.5'. Stopped sampling at 21.0'. No groundwater encountered at time of drilling.	25								

The discussion in the text under the section titled, SUBSURFACE CONDITIONS, is necessary for a proper understanding of the nature of the subsurface material.

FIGURE 3C

Gordon Spilker Huber Geotechnical Consultants, Inc.
Salt Lake City, Utah 84123

BOREHOLE B-4

Page: 1 of 1

Project Name: Multi-Level Hotel/Retail & Parking Structures
Project No.: 0916-002-09
Location: SW Cnr of 100 S & 300 W, Salt Lake City, Utah
Client: PEG Development
Drilling Method: 3-3/4" ID Hollow-Stem Auger
Date Drilled: 10-28-09 GSH Field Rep.: PRE
Elevation: - -
Water Level: No groundwater encountered (10-28-09)
Remarks:

Graphical Log	Water Level	DESCRIPTION	DEPTH FT.	BLOWS/FT	SAMPLE SYMBOL	MOISTURE (%)	% PASSING 200	DRY DENSITY (PCF)	Liquid Limit (%)	Plastic Limit (%)	REMARKS
		Ground Surface	0								
		3" ASPHALT CONCRETE									
		3" ROADBASE, FILL silty fine to coarse sand and fine gravel: brown (SM/GM-FILL)									moist stiff
		SILTY CLAY, FILL with some fine to coarse sand: dark brown (CL-FILL)		12							
			5	8							medium stiff
		SILTY CLAY with trace fine gravel and some fine sand: brown (CL)									moist stiff
				18							
		FINE TO COARSE SAND AND FINE GRAVEL with some silt and occasional layers up to 1/2" thick of silty clay with some fine sand, brown (SM/SP/GM/GP)	10								moist loose
			15	18							
			20	68							medium dense
		Stopped drilling at 19.5'. Stopped sampling at 21.0'. No groundwater encountered at time of drilling.	25								

The discussion in the text under the section titled, SUBSURFACE CONDITIONS, is necessary for a proper understanding of the nature of the subsurface material.

FIGURE 3D

Gordon Spilker Huber Geotechnical Consultants, Inc.
Salt Lake City, Utah 84123

BOREHOLE B-5

Project Name: Multi-Level Hotel/Retail & Parking Structures
Project No.: 0916-002-09
Location: SW Cnr of 100 S & 300 W, Salt Lake City, Utah
Client: PEG Development
Drilling Method: 3-3/4" ID Hollow-Stem Auger
Date Drilled: 10-28-09
GSH Field Rep.: PRE
Elevation: - -
Water Level: No groundwater encountered (10-28-09)
Remarks:

Graphical Log	Water Level	DESCRIPTION	DEPTH FT.	BLOWS/FT	SAMPLE SYMBOL	MOISTURE (%)	% PASSING 200	DRY DENSITY (PCF)	Liquid Limit (%)	Plastic Limit (%)	REMARKS
		Ground Surface	0								
		4" ASPHALT CONCRETE									
		3" ROADBASE, FILL silty fine to coarse sand and fine gravel, brown (SM/GM-FILL)									moist very dense
		SILTY FINE TO COARSE SAND AND FINE GRAVEL, FILL brown (SM/GM-FILL)		50 3"							
			5								
				33							medium dense
		SILTY CLAY with some fine to coarse sand; brown (CL)									moist medium stiff
			10	10							
		SILTY FINE AND COARSE GRAVEL AND FINE TO COARSE SAND brown (GM/SM)									moist medium dense
			15	79							
		SILTY CLAY with some fine sand and occasional layers up to 2" thick of silty fine sand; brown (CL)									moist stiff
			20	79		19.1		105			
		Stopped drilling at 19.5'. Stopped sampling at 21.0'. No groundwater encountered at time of drilling.	25								

The discussion in the text under the section titled, SUBSURFACE CONDITIONS, is necessary for a proper understanding of the nature of the subsurface material.

FIGURE 3E

Gordon Spilker Huber Geotechnical Consultants, Inc.
Salt Lake City, Utah 84123

BOREHOLE B-6

Project Name: Multi-Level Hotel/Retail & Parking Structures
Project No.: 0916-002-09
Location: SW Cnr of 100 S & 300 W, Salt Lake City, Utah
Client: PEG Development
Drilling Method: 3-3/4" ID Hollow-Stem Anger
Date Drilled: 10-28-09 GSH Field Rep.: PRE
Elevation: - -
Water Level: No groundwater encountered (10-28-09 & 11-05-09)
Remarks:

DESCRIPTION	DEPTH FT.	BLOWS/FT	MOISTURE (%)	% PASSING 200	DRY DENSITY (PCF)	Liquid Limit (%)	Plastic Limit (%)	REMARKS
Ground Surface	0							
3" ASPHALT CONCRETE								
3" ROADBASE, FILL silty fine to coarse sand and fine gravel; brown (SM/GM-FILL)								moist stiff
SILTY CLAY, FILL with some fine sand and fine gravel; dark brown (CL-FILL)		17						
	5	10						medium stiff
SILTY CLAY with some fine sand and occasional layers up to 1" thick of silty fine sand; brown (CL)								moist medium stiff/stiff
	10	55	22.6		98			
SILTY FINE TO COARSE SAND AND FINE AND COARSE GRAVEL brown (SM/GM)								moist medium dense
	15	55						
SILTY CLAY with some fine sand; brown (CL)								moist
	20	46						
FINE TO COARSE SAND AND FINE GRAVEL with some silt; brown (SP/SM/GP/GM)								moist medium dense
Stopped drilling at 19.5'. Stopped sampling at 21.0'. Installed 1-1/4" diameter slotted PVC pipe to 21.0'. No groundwater encountered.	25							

The discussion in the text under the section titled, SUBSURFACE CONDITIONS, is necessary for a proper understanding of the nature of the subsurface material.

FIGURE 3F

BOREHOLE B-7

Gordon Spilker Huber Geotechnical Consultants, Inc.
Salt Lake City, Utah 84123

Project Name: Multi-Level Hotel/Retail & Parking Structures
Project No.: 0916-002-09
Location: SW Cnr of 100 S & 300 W, Salt Lake City, Utah
Client: PEG Development
Drilling Method: 3-3/4" ID Hollow-Stem Auger
Date Drilled: 10-28-09 GSH Field Rep.: PRE
Elevation: - -
Water Level: No groundwater encountered (10-28-09 & 11-05-09)
Remarks:

Graphical Log	Water Level	DESCRIPTION	DEPTH FT.	BLOWS/FT	SAMPLE SYMBOL	MOISTURE (%)	% PASSING 200	DRY DENSITY (PCF)	Liquid Limit (%)	Plastic Limit (%)	REMARKS
		Ground Surface	0								
		3" ASPHALT CONCRETE									
		4" ROADBASE, FILL silty fine to coarse sand and fine gravel; brown (SM/GM-**FILL**)									moist stiff
		SILTY CLAY, FILL with some fine to coarse sand and fine gravel; dark brown (CL-**FILL**)		15							
			5								
				8							medium stiff
			10	13							moist stiff
		SILTY CLAY with some fine sand and occasional layers up to 1" thick of silty fine sand; brown (CL)									
			15	10							medium stiff
		SILTY FINE TO COARSE SAND AND FINE AND COARSE GRAVEL with some silt; brown (SM/GM/SP/GP)									moist
			20	17							moist
		SILTY CLAY with some fine to coarse sand; dark brown (CL)									stiff
		Stopped drilling at 19.5'. Stopped sampling at 21.0'. Installed 1-1/4" diameter slotted PVC pipe to 21.0'. No groundwater encountered.									
			25								

The discussion in the text under the section titled, SUBSURFACE CONDITIONS, is necessary for a proper understanding of the nature of the subsurface material.

FIGURE 3G

Gordon Spilker Huber Geotechnical Consultants, Inc.
Salt Lake City, Utah 84123

BOREHOLE B-8

Project Name: Multi-Level Hotel/Retail & Parking Structures
Project No.: 0916-002-09
Location: SW Cnr of 100 S & 300 W, Salt Lake City, Utah
Client: PEG Development
Drilling Method: 3-3/4" ID Hollow-Stem Auger
Date Drilled: 10-28-09 GSH Field Rep.: PRE
Elevation: - -
Water Level: No groundwater encountered (10-28-09 & 11-05-09)
Remarks:

Graphical Log	Water Level	DESCRIPTION	DEPTH FT.	BLOWS/FT	SAMPLE SYMBOL	MOISTURE (%)	% PASSING 200	DRY DENSITY (PCF)	Liquid Limit (%)	Plastic Limit (%)	REMARKS
		Ground Surface	0								
		3" ASPHALT CONCRETE									
		3" ROADBASE, FILL silty fine to coarse sand and fine gravel; brown (SM/GM-FILL)									moist stiff
		SILTY CLAY, FILL with some fine to coarse sand; dark brown (CL-FILL)		19							
			5	16							moist loose
		SILTY FINE TO COARSE SAND AND FINE GRAVEL brown (SM/GM)									
			10	28							medium dense
		grades with occasional layers up to 1" thick of silty clay with some fine sand	15	28							loose
		SILTY CLAY with trace fine sand, brown (CL)									moist very stiff
			20	28							moist
		SILTY FINE AND COARSE GRAVEL AND FINE AND FINE TO COARSE SAND brown (GM/SM)									
		Stopped drilling at 19.5'. Stopped sampling at 21.0'. Installed 1-1/4" diameter slotted PVC pipe to 21.0'. No groundwater encountered.	25								

The discussion in the text under the section titled, SUBSURFACE CONDITIONS, is necessary for a proper understanding of the nature of the subsurface material.

FIGURE 3H

UNIFIED SOIL CLASSIFICATION SYSTEM

IDENTIFICATION PROCEDURES					GROUP SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS (More than half of material is larger than No. 200 sieve size)	GRAVELS (More than half of coarse fraction is larger than No. 4 sieve size) (For visual classifications, the 1/4" size may be used as equivalent to the No. 4 sieve size)	CLEAN GRAVELS (Little or no fines)	Wide range in grain size and substantial amounts of all intermediate particle sizes		GW	Well-graded gravels, gravel-sand mixtures, little or no fines
			Predominantly one size or a range of sizes with some intermediate sizes missing		GP	Poorly-graded gravels or gravel-sand mixtures, little or no fines
		GRAVELS WITH FINES (Appreciable amount of fines)	Non-plastic fines (for identification procedures see ML below)		GM	Silty gravels, gravel-sand-silt mixtures
			Plastic fines (for identification procedures see CL below)		GC	Clayey gravels, gravel-sand-clay mixtures
	SANDS (More than half of coarse fraction is smaller than No. 4 sieve size) (For visual classifications, the 1/4" size may be used as equivalent to the No. 4 sieve size)	CLEAN SANDS (Little or no fines)	Wide range in grain sizes and substantial amounts of all intermediate particle sizes		SW	Well-graded sands, gravelly sands, little or no fines
			Predominantly one size or a range of sizes with some intermediate sizes missing		SP	Poorly-graded sands, gravelly sands, little or no fines
		SANDS WITH FINES (Appreciable amount of fines)	Non-plastic fines (for identification procedures see ML below)		SM	Silty sands, poorly graded sand-silt mixtures
			Plastic fines (for identification procedures see CL below)		SC	Clayey sands, poorly graded sand-clay mixtures
FINE GRAINED SOILS (More than half of material is smaller than No. 200 sieve size) (The No. 200 sieve size is about the smallest particle visible to the naked eye)	IDENTIFICATION PROCEDURES ON FRACTION SMALLER THAN No. 40 SIEVE SIZE					
	SILTS AND CLAYS (Liquid limit less than 50)	DRY STRENGTH (CRUSHING CHARACTERISTICS)	DILATANCY (REACTION TO SHAKING)	TOUGHNESS (CONSISTENCY NEAR PLASTIC LIMIT)		
		None to slight	Quick to slow	None	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands with slight plasticity
		Medium to high	None to very slow	Medium	CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		Slight to medium	Slow	Slight	OL	Organic silts and organic silty clays of low plasticity
	SILTS AND CLAYS (Liquid limit greater than 50)	Slight to medium	Slow to none	Slight to medium	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		High to very high	None	High	CH	Inorganic clays of high plasticity, fat clays
		Medium to high	None to very slow	Slight to medium	OH	Organic clays of medium to high plasticity
HIGHLY ORGANIC SOILS		Readily identified by color, odor, spongy feel and frequently by fibrous texture			PT	Peat and other highly organic soils

a) Boundary classifications: Soils possessing characteristics of two groups are designated by combinations of group symbols. For example GW-GC, well graded gravel-sand mixture with clay binder.
b) All sieve sizes on this chart are U.S. standard

GENERAL NOTES

1. In general Unified Soil Classification Designations presented on the logs were evaluated by visual methods only. More rigorous designations (based on laboratory testing) may differ.
2. Lines separating strata on the logs represent approximate boundaries only. Actual transitions may be gradual.
3. Logs represent general soil conditions observed at the point of exploration on the date indicated.
4. No warranty is provided as to the continuity of soil conditions between individual sample locations.

LOG KEY SYMBOLS

- Bulk Bag Sample
- Shelby Tube
- Standard Penetration Split Spoon Sample
- No Recovery
- Rock Core
- 3-3/4" I.D. Drive Sampler
- 3" I.D. Drive Sampler
- Water Level
- California Sampler

FINE - GRAINED SOIL

CONSISTENCY	SPT (blows/ft)	TORVANE UNDRAINED SHEAR STRENGTH (tsf)	POCKET PENETROMETER UNCONFINED COMPRESSIVE STRENGTH (tsf)	FIELD TEST
Very Soft	<2	<0.125	<0.25	Easily penetrated several inches by Thumb. Squeezes through fingers.
Soft	2 - 4	0.125 - 0.25	0.25 - 0.5	Easily penetrated 1" by Thumb. Molded by light finger pressure.
Medium Stiff	4 - 8	0.25 - 0.5	0.5 - 1.0	Penetrated over 1/2" by Thumb with moderate effort. Molded by strong finger pressure.
Stiff	8 - 15	0.5 - 1.0	1.0 - 2.0	Indented about 1/2" by Thumb but penetrated only with great effort
Very Stiff	15 - 30	1.0 - 2.0	2.0 - 4.0	Readily indented by Thumbnail
Hard	>30	>2.0	>4.0	Indented with difficulty by Thumbnail

COARSE -GRAINDE SOIL

APPERENT DENSITY	SPT (# per ft)	RELATIVE DENSITY (%)	FIELD TEST
Very Loose	<4	0 - 15	Easily penetrated with 1/2" reinforcing rod pushed by hand
Loose	4 - 10	15 - 35	Difficult to penetrated with 1/2" reinforcing rod pushed by hand
Medium Dense	10 - 30	35 - 65	Easily penetrated a foot with 1/2" reinforcing rod driven with 5-lb hammer.
Dense	30 - 50	65 - 85	Difficult to penetrated a foot with 1/2" reinforcing rod driven with 5-lb hammer.
Very Dense	>50	85 - 100	Penetrated only a few inches with 1/2" reinforcing rod driven with 5-lb hammer.

STRATIFICATION

DESCRIPTION	THICKNESS
SEAM	1/16 - 1/2"
LAYER	1/2 - 12"

DESCRIPTION	THICKNESS
Occasional	One or less per foot of thickness
Frequent	More than on per foot of thickness

CEMENTATION

DESCRIPTION	DESCRIPTION
Weakely	Crumbles or breaks with handling of slight finger pressure
Moderately	Crumbles or breaks with considerable finger pressure
Strongly	Will not crumbles or breaks with finger pressure

MODIFIERS

DESCRIPTION	%
Trace	<5
Some	5 - 12
With	>12

MOISTURE CONTENT

DESCRIPTION	FIELD TEST
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible water, usually soil below Water Table

FIGURE 4

GSH
Gordon Spilker Huber
Geotechnical Consultants, Inc.

Appendix E
ERM Health and Safety Plan

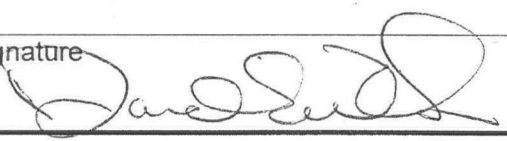
ERM

LEVEL 2 INTRUSIVE WARN
HEALTH AND SAFETY PLAN
GMS Project # 0107831

This Level 2 WARN HASP is intended to provide health and safety guidelines for project field work meeting the following criteria:

- **Short-duration work not exceeding 30 consecutive days**
- **"Buddy System" in use**
- **Some likelihood of chemical and/or physical hazard exposure**
- **Limited number of job tasks (5 or less)**
- **No confined space entry or supplied-air respirator use**
- **Limited number of subcontractors involved (2 or less)**

The Project Manager should review this Health and Safety Plan with all ERM project personnel and maintain the HASP in project files. H&S Team review is required for the Level 2 WARN and should be accomplished by sending the completed document to the "ERM NA Safety Leads" Outlook email group.

Administrative Information **This document is valid for a maximum time period of one year after initial completion.** **A minimum of two persons with appropriate training and medical surveillance must be onsite. A mix of ERM and other personnel can satisfy this requirement.**	Site Name and Location Salt Lake Mixed Use Hotel Project, Salt Lake City, UT	
	Client Contact and Phone Mr. Robert Schmidt (801) 841-3082	
	Project Name Salt Lake Mixed Use Hotel Project	
	Health & Safety Plan Date 5/25/10	Revision Number and Date
	Field Work Start Date 2010	Anticipated Field Work End Date 2010
	Project Manager (*responsible for implementing the site health and safety program on this project*) Garrett Rigard	Partner In Charge (*responsible for overall site health and safety performance on this project).* David Wilson
H&S Team Review	Review Date June 3, 2010	Signature 

Project Background and Scope of Work **Include bullet list of tasks to be completed by ERM personnel during this project, and a separate list of tasks to be completed by any subcontractors at the site.**	ERM Scope of Work: Support development group during construction activities with quality assurance inspection during the asbestos management activities. This will include participation in pre-construction meetings with the development group's design and construction teams to assure udnerstanding of the work plan requirements. ERM will work with the contractors to assure compliance with the approved work plan and will support modifications if needed based on field conditions. Subcontractor Scope of Work:

Site/Project General Information **An asterisk (*) indicates that a completed Risk Assessment checklist must be completed and attached to this document.**	Site Type (check all applicable boxes)			
	☐ Active Facility*	☐ Remote Facility*	☐ Inactive Facility*	☐ Inactive Facility*
	☐ Mine	☐ Railroad	☐ Industrial	☐ Residential
	☐ Secured	☐ Uncontrolled	☐ Chemical Mixing**	☒ Other (specify) Commercial Redevelopment

A double asterisk (**) indicates that a Risk Review must take place prior to beginning fieldwork on the project.

Main Site Hazards (check all applicable boxes)

☐ Heat Stress	☐ Cold Stress	☐ Explosion/Fire	☐ Oxygen Deficiency
☐ Biological	☐ Organic Chemicals	☐ Inorganic Chemicals	☒ Heavy Equipment in Use
☐ Compressed Gas	☒ Asbestos	☒ High Noise	☒ Respirable Particles
☐ Work Over 6' High	☐ Extreme Weather	☒ Hand/Portable Power Tools	☐ Non-Ionizing Radiation
☐ Blasting Agents	☐ Confined Spaces	☐ ASTs/USTs	☒ Buried/Overhead Utilities
☒ Slip/Trip/Fall	☒ Forklift Use	☐ Manlift/Cherry Picker Use	☐ Heavy Equipment Use
☐ Scaffold Use	☐ Portable Ladders	☐ Welding or Hot Work	☒ Construction
☒ Excavations	☐ Extreme Weather	☒ Hand/Portable Power Tools	☐ Strip/Underground Mines
☐ Lockout/Tagout	☐ Commercial Vehicle	☐ Other (*specify*)	☐ Other (*specify*)

Chemical Products ERM will Use or Store Onsite

For each chemical product identified, an MSDS must be attached to this WARN HASP

- ☐ Alconox or Liquinox
- ☐ Hydrochloric acid (HCl)*
- ☐ Nitric acid (HNO_3)*
- ☐ Sodium hydroxide (NaOH)*
- ☐ Calibration gas (Methane)
- ☐ Calibration gas (Isobutylene)
- ☐ Calibration gas (Pentane)
- ☐ Calibration gas (4-gas mixture)
- ☐ Other (specify)
- ☐ Isopropyl Alcohol
- ☐ Household bleach (NaOCl)*
- ☐ Sulfuric acid (H_2SO_4)*
- ☐ Hexane
- ☐ Other (specify)

***NOTE: Eyewash solution shall be readily available on ALL projects where corrosive materials are used or stored, including sample preservatives.**

Safe Work Practices

Place a checkmark by applicable SWPs and attach to this document

For hazards not covered by SWPs listed in this section, list the task name and complete a Job Hazard Analysis sheet (JHA) for each

SWPs Applicable To This Project (check all applicable boxes)

☒ 1-Hazard Communication	☐ 3-Medical Services and First Aid	☒ 4-Airborne Contaminants	☐ 5-Heat Stress
☐ 6-Cold Stress	☒ 7-Natural Hazards	☒ 8-Personal Protective Equipment	☒ 9-Respiratory Protection
☐ 10-Confined Space Entry	☐ 11-Drum Handling	☒ 13-Excavation	☐ 14-Fall Protection and Prevention
☒ 16-Forklift and Truck Operations	☒ 17-Hand Tools	☒ 19-Heavy and Material Handling Equipment	☐ 20-Ladder Safety
☐ **Other Task (specify)**	☐ **Other Task (specify)**	☐ **Other Task (specify)**	☐ **Other Task (specify)**
☐ **Other Task (specify)**	☐ **Other Task (specify)**	☐ **Other Task (specify)**	☐ **Other Task (specify)**

Levels of Protection Required for each Task

Signature of the H&S Team on page 1 of this document signifies certification of PPE Hazard Assessment

Task Description	Level			
	A	B	C	D
Construction oversight (earthwork activities)	☐	☐	☐	☒
	☐	☐	☐	☐
	☐	☐	☐	☐
	☐	☐	☐	☐
	☐	☐	☐	☐

Personal Protective Equipment Req=Required Rec=Recommended	Equipment	Req	Rec	NA	Equipment	Req	Rec	NA
	Steel Toe Boots	☒	☐	☐	Hard Hat	☒	☐	☐
	Long Sleeve Shirt & Pants	☒	☐	☐	Safety Glasses Shields	☒	☐	☐
	Outer Disposable Boots	☐	☐	☐	Indirect Vented Goggles	☐	☐	☐
	Tyvek Suit	☐	☐	☐	Poly-Coated Tyvek	☐	☐	☐
	Fully Encapsulated Chemical Suit	☐	☐	☐	Full-Face Respirator	☐	☐	☐
	Hearing Protection	☐	☐	☐	Half-Face Respirator	☐	☒	☐
	Leather Gloves	☐	☒	☐	Inner Chemical Gloves	☐	☐	☐
	Outer Chemical Gloves	☐	☐	☐	Other (specify)	☐	☐	☐
Training and Medical Surveillance Req=Required Rec=Recommended	**Training**	**Req**	**Rec**	**NA**	**Medical Surveillance**	**Req**	**Rec**	**NA**
	40 Hour HAZWOPER	☒	☐	☐	Medical Clearance	☒	☐	☐
	Current 8 Hour HAZWOPER	☒	☐	☐	Respirator Clearance	☒	☐	☐
	8 Hour HAZWOPER Supervisor*	☐	☐	☐	Blood Lead and ZPP	☐	☐	☐
	Current CPR and First Aid*	☐	☐	☐	Other (specify)	☐	☐	☐
	10 Hour Construction	☐	☐	☐	Other (specify)	☐	☐	☐
	ERM H&S Management System	☐	☐	☐				
	ERM Site Safety Officer*	☒	☐	☐				
	Other (specify)	☐	☐	☐				
	Other (specify)	☐	☐	☐				
Safety Supplies Req=Required Rec=Recommended	**Supplies**	**Req**	**Rec**	**NA**	**Supplies**	**Req**	**Rec**	**NA**
	First Aid Kit	☒	☐	☐	Fire Extinguisher	☒	☐	☐
	Eyewash Solution	☐	☐	☐	Water/Sports Drink	☐	☐	☐
	Air Horn	☐	☐	☐	Oral Thermometer	☐	☐	☐
	Noise Meter (Dosimeter)	☐	☐	☐	Decontamination Supplies	☐	☐	☐

Subsurface Clearance Information Sources Summary Document the information sources that ERM used or will use to locate Subsurface Structures on site.	Information Source	Yes	No	N/A	Comment
	Facility-provided Map(s) of Utilities	☐	☐	☒	Date(s): Maps managed by contractor
	Knowledgeable Contact Person	☐	☐	☒	Who: Time in Job: Time at Site:
	Public Utility Markouts	☐	☐	☒	Who: Tech. Used: Target Services:
	ERM subcontractor performed geophysics / cable avoidance scans	☐	☐	☒	Who: Tech. Used: Target Services:

Site Services Model	Utility / Service	Present	Expected Depth	Located?		Absent	Unknown	Comment
				Yes	No			
List the utilities or other below ground services present on site. **Do we know the locations of these services, their conveyance on site (to the site boundary, as appropriate) and the location of isolation switches or valves?** **If "Present" and not located or "Unknown", comment on how those gaps will be addressed.**	Electricity	☐		☐	☐	☐	☐	
	Gas	☐		☐	☐	☐	☐	
	Water	☐		☐	☐	☐	☐	
	Sewer	☐		☐	☐	☐	☐	
	Telephone / Data	☐		☐	☐	☐	☐	
	Plant air / steam	☐		☐	☐	☐	☐	
	Fuel / oil	☐		☐	☐	☐	☐	
	Fire suppression	☐		☐	☐	☐	☐	
	Others (List):	☐		☐	☐	☐	☐	
		☐		☐	☐	☐	☐	

Attach a figure / drawing showing the conveyance and isolation switches or values for each located utility or service above.

Subsurface Clearance Process Waivers Document any waivers to the process approved by the PIC. Legally required steps cannot be waived.	Waiver For...	Waived By (PIC)	Date	Reason
	Performance of Public Utility Markouts	David Wilson	6/3/10	Managed by contractor
	Performance of Private Utility Markouts	David Wilson	6/3/10	Managed by contractor
	Restricting ground disturbance inside a Critical Zone	David Wilson	6/3/10	Managed by contractor
	Physical Clearance at Disturbance Locations (list)	David Wilson	6/3/10	Managed by contractor

Overhead Clearance Document the steps that must be followed and justify any exceptions	Requirement	Yes	No	How will it be done? Why the exception?
	Are overhead utility lines in the general vicinity of ERM work onsite?	☐	☐	Managed by contractor
	If overhead utilities are present, has nominal voltage been determined? If yes, list in comments section.	☐	☐	Managed by contractor
	Before drill rig mast is raised in the vicinity of power lines, have we ensured that the minimum horizontal distance from any point on the drill rig to the nearest power line is greater than 25 ft?	☐	☐	Managed by contractor
	If the drill rig is closer than 25 ft to the overhead utility, can the utility be de-energized?	☐	☐	Managed by contractor

Subsurface and Overhead Utility Clearance Map **If a client-supplied map is not used to indicate location of subsurface and/or overhead utilities draw a sketch in this area indicating both drilling locations and locations of subsurface and overhead utilities**	

Work Zones **If exclusion zones are necessary because of chemical OR equipment hazards, describe the plan**	Exclusion Zone: NA
	Contamination Reduction Zone: NA
	Support Zone: NA

Site Access/Control **How do we limit unauthorized entry to the site itself?**	Access Control Procedures: Site access control to be handled by development group and construction team.
DECON Procedures	Decontamination Procedures: NA

Chemicals of Concern

In the section to the right, check any chemicals present onsite in any media (air, soil water).

In the table below, list chemicals suspected or confirmed to be onsite, and provide requested information.

- ☒ Friable Asbestos
- ☐ 3,3'-Dichlorobenzidine
- ☐ Benzidine
- ☐ beta-Propiolactone
- ☐ N-Nitrosomethylamine
- ☐ Lead
- ☐ Benzene
- ☐ Acrylonitrile
- ☐ Methylenedianiline
- ☐ alpha-Napthylamine
- ☐ bis-Chloromethyl ether
- ☐ 4-Aminodiphenyl
- ☐ 2-Acetylaminoflourene
- ☐ Vinyl chloride
- ☐ Chromium (VI)
- ☐ Coke oven emissions
- ☐ Ethylene oxide
- ☐ 1,3-Butadiene
- ☐ Methyl chromoethyl ether
- ☐ beta-Napthylamine
- ☐ Ethyleneimine
- ☐ 4-Dimethylaminoazobenzene
- ☐ Inorganic arsenic
- ☐ Cadmium
- ☐ 1,2-Dibromo-3-chloropropane
- ☐ Formaldehyde
- ☐ Methylene chloride
- ☐ **No ERM exposure to these**

Materials Present or Suspected at Site	Highest Reported Concentration (specify units and sample medium)	Exposure Limit (specify ppm or mg/m^3)	IDLH Level (specify ppm or mg/m^3)	Primary Hazards of the Material (explosive, flammable, corrosive, toxic, volatile, radioactive, biohazard, oxidizer, or other)	Symptoms and Effects of Acute Exposure	Ionization Potential (eV)
Asbestos containing soil	soil - 6%	PEL = 0.1 fibers/cubic cm REL = TLV = Skin Hazard ☐				
		PEL = REL = TLV = Skin Hazard ☐				
		PEL = REL = TLV = Skin Hazard ☐				
		PEL = REL = TLV = Skin Hazard ☐				

PEL = OSHA Permissible Exposure Limit
REL = NIOSH Recommended Exposure Limit
TLV = ACGIH Threshold Limit Value
IDLH = Immediately Dangerous to Life or Health

Monitoring Equipment: All monitoring equipment on site must be calibrated before and after each use and results recorded				
Instrument (Check all required)	**Task**	**Instrument Reading**	**Action Guideline**	**Comments**
☐ Combustible gas indicator model:	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5	0 to 10% LEL	Monitor; evacuate if confined space	
		10 to 25% LEL	Potential explosion hazard	
		>25% LEL	Explosion hazard; interrupt task; evacuate site	
☐ Oxygen meter model:	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5	>23.5% Oxygen	Potential fire hazard; evacuate site	
		23.5 to 19.5% Oxygen	Oxygen level normal	
		<19.5% Oxygen	Oxygen deficiency; interrupt task; evacuate site	
☐ Radiation survey meter model:	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5	Normal background	Proceed	Annual exposure not to exceed 1,250 mrem per quarter Background reading must be taken in an area known to be free of radiation sources
		Two to three times background	Notify SSC	
		>Three times background	Radiological hazard; interrupt task; evacuate site	
☐ Photoionization detector model: ☐ 11.7 eV ☐ 10.6 eV ☐ 10.2 eV ☐ 9.8 eV ☐ _____ eV	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5	Any response above background to 5 ppm above background	Level C is acceptable Level B is recommended	These action levels are for unknown gases or vapors. After the contaminants are identifed, action levels should be based on the specific contaminants involved.
		>5 to 500 ppm above background	Level B	
		>500 ppm above background	Level A	
☐ Flame ionization detector model:	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5	Any response above background to 5 ppm above background	Level C is acceptable Level B is recommended	These action levels are for unknown gases or vapors. After the contaminants are identifed, action levels should be based on the specific contaminants involved.
		>5 to 500 ppm above background	Level B	
		>500 above background	Level A	
☐ Detector tube models:	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5	Specify: <1.2 the PEL >1/2 the PEL	Specify:	The action level for upgrading the level of protection is one-half of the contaminant's PEL. If the PEL is reached, evacuate the site and notify a safety specialist.
☒ Other (specify): Asbestos air sampler	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5	Specify:	Specify:	Exposure not to exceed 0.1 fibers per cubic centimeter of air as an eight hour time-weighted average (TWA)

Emergency Response Planning	
In the pre-work briefing and daily tailgate safety meetings, all onsite employees will be trained in the provisions of emergency response planning, site communication systems, and site evacuation routes. **Signal a site emergency or medical emergency with three blasts of a loud horn (car horn, fog horn, or similar device).** **To complete this section, attach a hospital route map to the HASP.**	**All work-related incidents must be reported. For all medical emergencies, call 911 or the local emergency number. For non-emergency incidents, you must:** • Give appropriate first aid care to the injured or ill individual and secure the scene. • Immediately call Incident Intervention at (888) 449-7787 (available 24 hours/7 days per week). • Notify the Project Manager and/or H&S Officer after calling Incident Intervention. • Enter the safety event into the ECS within 24 hours. **In the event of an emergency that necessitates evacuation of the work task area or the site as a whole, the following procedures shall occur:** • The ERM site safety contact will contact all nearby personnel using the onsite communications system to advise of the emergency. • Personnel will proceed along site roads to a safe distance upwind from the hazard source. • Personnel will remain in that area until the site safety contact or other authorized individual provides further instruction. **In the event of a severe spill or leak, site personnel will follow the procedures listed below:** • Evacuate the affected area and relocate personnel to an upwind location. • Inform the ERM site safety contact, an ERM office, and a site representative immediately. • Locate the source of the spill or leak, and stop the source if it is safe to do so and appropriately trained personnel are onsite to do so. • Begin containment and recovery of spilled or leaked materials. • Notify appropriate local, state, and federal agencies after obtaining client consent to do so. **In the event of severe weather, site personnel will follow the procedures listed below:** • Site work shall not be conducted during severe weather, including high winds and lightning. • In the event of severe weather, stop work, lower any equipment (drill rigs), and evacuate the affected area.

Emergency Contacts	Name	Location	Phone	Cell Phone
Hospital (attach map)	Salt Lake Regional Med Center	1050 E South Temple, SLC	801-350-4111	
Police	Dispatch		911	
Fire	Dispatch		911	
Project Manager	David Wilson	Salt Lake City, UT	801-595-8400	801-916-6957
Field Manager (if not PM)	Garrett Rigard	Salt Lake City, UT	801-595-8400	
Field Safety Officer (if not PM)	Garrett Rigard	Salt Lake City, UT	801-595-8400	
Division H&S Contact				
Region H&S Contact	Rick Ecord	Atlanta, GA	404-816-6606	404-769-4561
Incident Intervention	WorkCare	N/A	888-449-7787	N/A
SSC Experienced Person				
Subcontractor Safety Contact				

Acknowledgement	*I have read, understood, and agree with the information set forth in this Health & Safety Plan, and will follow guidance in the plan and in the ERM North America Health and Safety manual. I understand the training and medical monitoring requirements for conducting activities covered by this WARN and have met these requirements.* *ERM has prepared this plan solely for the purpose of protecting the health and safety of ERM employees. Subcontractors, visitors, and others at the site are required to follow provisions in this document at a minimum, but must refer to their organization's health and safety program for their protection.*		
Printed Name	Signature	Organization	Date

Approval Signatures **Signatures in this section indicate the signing employee will comply with and enforce this WARN HASP, as well as procedures and guidelines established in the ERM NA H&S. Signatures in this section also indicate that any subcontractors performing work under contract to ERM have met the minimum safety standards in the ERM Subcontractor Prequalification Process.**	Project Manager	Date:
	Partner in Charge 	Date: June 3, 2010

North America Job Hazard Analysis
Operating Vehicles

Project Name:	Salt Lake Mixed Use Hotel Project
Project Number:	0107831
Job / Task Name:	PEG Development - Site Redevelopment
JHA No.: 5	

Document Routing	
FSO	Retain copy in site health & safety file, amend to HASP as necessary.
Project Manager	Retain copy in the office health & safety file, amend to HASP as necessary.

Instructions:	This JHA has been developed and approved by the North America Safety Team. Prior to conducting fieldwork, site-specific hazards related to this task must be incorporated by the project team. Once completed, the JHA should be reviewed regularly with site personnel who will be performing this task.

Task Description:

Operating vehicles for work, including personal vehicles, company-owned vehicles, and rental vehicles

Hazard Analysis:

Task Step	Hazard	Control Measures
Inspect the Vehicle	Tire pressure, brakes, steering, headlights and other vehicle equipment malfunction can contribute to vehicle accidents and property damage. Loose articles inside the vehicle and carried in truck beds or on trailers can shift and cause distractions or traffic accidents.	Use the "ERM Vehicle Safety Form" to document daily inspections of the vehicle. In certain cases, a client-required form may be used instead. Do not operate any vehicle if its safety is in question. During vehicle inspection make sure any loose articles either inside the vehicle or in truck beds/on trailers are well-secured.
Get in and out of the Vehicle	Hands, hair, or loose clothing can be caught in doors, trunk covers, and other vehicle equipment, causing injury.	When entering or exiting a vehicle, pay attention to what you are doing. ERM has had incidents occur simply from being rushed and not paying attention during vehicle entry/exit.
Drive the Vehicle	Operating a vehicle presents many different hazards to employees that must be simultaneously mitigated.	Before moving vehicles always put your seat belt on, and stop using handheld electronics. Make sure any food or drink is secured and any electronics are programmed (GPS). When moving vehicles, follow all posted speed limits and posted signs. Do not pick up hitch-hikers, and never transport people in truck beds.

North America Job Hazard Analysis
Operating Vehicles

Project Name:	Salt Lake Mixed Use Hotel Project
Project Number:	0107831
Job / Task Name:	PEG Development - Site Redevelopment
JHA No.: 5	

Task Step	Hazard	Control Measures
Driving when Fatigued	Operating a vehicle after a full day of work or when you are fatigued drastically decreases focus and response time, and increasing the risk of being involved in a vehicle accident	Avoid driving more than 8 hours in one workday. If the number of hours driving to/from a jobsite combined with the number of hours to be worked on the site will equal more than 14 total hours, alternate arrangements should be arranged. Be aware of your fatigue level while driving and stop to rest if you feel overly tired.
Stay Focused on the Road	Doing anything that distiacts you from the road for more than 2 seconds highly increases the risk of being involved in a vehicle accident. In particular, driver inattention due to hand-held mobile phone use is currently thought to be responsible for approximately 80% of all vehicle accidents.	Do not operate a hand-held mobile phone while driving. Use a hands-free mobile solution instead, such as a Bluetooth headset or hardwired earpiece. In some cases, all mobile phone use while driving (including answering and dialing), may be prohibited by our client. Do not perform activities while driving that will take your attention off the road for more than 2 seconds. A few of these types of activities could include programming GPS', applying makeup, changing the radio, or eating while driving. When these sorts of activities must be performed, pull to the side of the road and stop.
Pull a Trailer	Many drivers are unfamiliar or inexperienced with pulling tiailers, increasing the risk of being involved in a vehicle accident.	If you are uncomfortable pulling a trailer do not do so. Arrange for an alternate, experienced driver. Be aware that it takes longer to speed up and slow down when pulling a trailer, and that visibility may be reduced significantly. Make sure your vehicle is capable to pull the weight of the tiailer and its contents. Inspect the trailer to ensure brake and tiirn signals work properly and in concert with the main vehicles signals, and that tire pressure is acceptable. Make sure trailer is attached securely to the main vehicle and the safety chain or other backup attachment device is in-place. Evenly distribute weight on any trailers pulled.

North America Job Hazard Analysis
Operating Vehicles

Project Name:	Salt Lake Mixed Use Hotel Project
Project Number:	0107831
Job / Task Name:	PEG Development - Site Redevelopment
JHA No.: 5	

Task Step	Hazard	Control Measures
Leaving the Vehicle	Leaving personal valuables and company equipment/documents in abandoned vehicles may attract thieves.	Turn off the engine and lock any vehicle being left for even a short period of time when not on a secure jobsite. If the vehicle will be left for long periods or overnight, remove any company documents, computers, and equipment, personal valuables, or any items that would attract thieves.
Report and Document Vehicle Accidents and Property Damage	Improper documentation of vehicle accidents and property damage caused by vehicle operation place ERM at risk.	No matter how minor a vehicle accident or property damage event is, report it as a safety event. If involved in a vehicle accident, always call the police so a report will be available, to protect your liability, and to protect ERM liability. Take as many pictures as you can of the accident scene if you can do so without placing yourself in further danger.
Drive a Commercial Vehicle	Driving vehicles alone or in combination (with a trailer, for example) with Gross Motor Vehicle Weight (GMVW) greater than 10,000 pounds carries additional regulatory requirements. Not addressing these requirements places ERM at risk.	Check the plaque on the inside of the driver-side door for the GMVW. If the weight is greater than 10,000 pounds contact a member of the North America Safety Team for further assistance. Do not operate the vehicle unless you have received proper training and have required supplies (such as logbooks).
Rent a Vehicle	Only certain car rental agencies have negotiated contracts, rates, and insurance coverage with ERM. Renting a vehicle from another agency exposes you and ERM to unnecessary liability and risk.	If possible, rent vehicles using the Cain Travel website, and from an ERM authorized car rental agency. If not possible to rent from one of these, you must purchase collision damage and personal accident insurance at the time of rental. Currently, authorized rental car agencies include: • Enterprise Car Rental • Hertz Car Rental

North America Job Hazard Analysis
Operating Vehicles

Project Name:	Salt Lake Mixed Use Hotel Project
Project Number:	0107831
Job / Task Name:	PEG Development - Site Redevelopment
JHA No.: 5	

Personal Protective Equipment Required for this Task:

Type	Description
Vehicle Safety Kit for Personal or Company-Owned Vehicles	Includes small fire extinguisher (ABC), first aid kit, spare tire/jack, jumper cables, flashlight, flares or lighted triangles, reflective vest, and disposable or digital camera (for documenting accidents)

Training Required for this Task:

Type	Description
ERM Safe Driving	E-learning course instructing employees on ERM vehicle safety policy and practice.

Forms Associated with this Task:

Type	Description
ERM Vehicle Safety Form	Includes items that should be inspected regularly on motorized vehicles.

Site-Specific Job Hazard Analysis Completed by:

Name	Date

North America Job Hazard Analysis
ERM Actions During Subsurface Clearance and Excavations

Project Name:	Salt Lake Mixed Use Hotel Project
Project Number:	0107831
Job / Task Name:	PEG Development - Site Redevelopment
JHA No.: 7	

Document Routing	
FSO	Retain copy in site health & safety file, amend to HASP as necessary.
Project Manager	Retain copy in the office health & safety file, amend to HASP as necessary.

Instructions:	This JHA has been developed and approved by the North America Safety Team. Prior to conducting fieldwork, site-specific hazards related to this task must be incorporated by the project team. Once completed, the JHA should be reviewed regularly with site personnel who will be performing this task.

Task Description:

General guidelines for working safely when performing any ground penetrating activities (excluding surface soil sampling) and ERM personnel activities during overseeing excavations.

Hazard Analysis:

Task Step	Hazard	Control Measures
Identify a Client Contact Person	Client contacts that are not familiar with the site layout could cause critical information to be missed during safety planning.	Determine degree of knowledge of our client contact by evaluating their current job duties at the site, length of time they have worked at the site, and time in their current job. If the ERM team does not feel comfortable with the level of experience of our client contact, take additional measures to ensure all pertinent subsurface utilities and services information is gathered.
Engage Subcontractors	Subcontractors who have not been evaluated against ERM minimum safety standards or who do not meet minimum safety standards may pose more risk.	Use only ERM subcontractors who are identified as having met our minimum safety standards. In cases where using an already-qualified subcontractor is not possible, ensure extra precautions are taken to provide safety oversight to the work.
Appoint an ERM Subsurface Clearance "Experienced Person" to the project	ERM employees who are not experienced with SSC issues may not recognize critical zones or clues to other site utilities/services.	Ensure a "SSC Experienced Person" is assigned to the project to provide oversight of ground penetrations and to mentor less experienced ERM employees.

North America Job Hazard Analysis
ERM Actions During Subsurface Clearance and Excavations

Project Name:	Salt Lake Mixed Use Hotel Project
Project Number:	0107831
Job / Task Name:	PEG Development - Site Redevelopment
JHA No.: 7	

Task Step	Hazard	Control Measures
Gather site-specific subsurface information	Incomplete or inaccurate site utility/service drawings may lead the ERM project team to incorrect conclusions regarding what utilities/services are onsite.	Obtain the most recent "as-built" drawings and additionai site information such as easements, rights-of-way, historical plot plans, etc. to assist making decisions about other actions that will be required at the site.
Develop the HASP	Using incorrect documents in safety planning may lead to not considering all pertinent information.	A Level 2 WARN HASP for Intrusive Work (minimum) must be used when performing any ground penetrations, with the exception of surface soil sampling. The Level 2 HASP contains a "Site Services Model" that ERM uses to evaluate SSC hazards.
Develop the Site Services Model	Critical zones and a whole-site view of utilities and services at the site are more difficult to do if not put into the Site Services Model.	Use the Site Services Model to identify gaps in knowledge from all drawings and other verbal information from our client contact. Identify locations of key isolation and shutoffs closest to the work area for each type of utility/service.
Make Preliminary Determinations	Not recognizing or identifying critical zones poses great hazard to ERM employees in the field from contact with electricity or other utilities.	Establish critical zones and excavation buffers for the work. Initial critical zone determinations may change in the field but are a good starting point in hazard identification.
Identify Preliminary Ground Disturbance Locations	Planning ground disturbance locations inside critical zones poses great hazard to ERM employees in the field from contact with electricity or other utilities.	Ensure excavation buffers have been identified using the Site Services Model and then identify locations outside those critical zones up-front, if possible. If a ground disturbance inside a critical zone is absolutely necessary, notify the site PIC and obtain guidance from him/her before proceeding.
Public and/or Private Utility Markout	Not having utilities marked may lead to a subsurface clearance strike.	Contact public and private utility markout services giving them enough time to respond. A minimum of 24-hour notification to utility locators is required in most states, and may vary higher in some states.
Conduct the Site Walk	Inexperienced people conducting the site walk may miss pertinent information regarding utilities and/or services.	The "SSC Experienced Person" must lead the site walk and should be accompanied by our client contact. Each ground disturbance location should be approved by our client contact (written approval preferred, verbal approval acceptable).

North America Job Hazard Analysis
ERM Actions During Subsurface Clearance and Excavations

Project Name:	Salt Lake Mixed Use Hotel Project
Project Number:	0107831
Job / Task Name:	PEG Development - Site Redevelopment
JHA No.: 7	

Task Step	Hazard	Control Measures
Inspect Each Ground Disturbance Location	Inexperienced people conducting inspection may miss pertinent information regarding utilities and/or services.	The "SSC Experienced Person" must lead inspection of each Ground Distiirbance Location. Any visual clues of subsurface obstruction/utilities should be documented. Critical zones may have to be reassessed at this point. Use the SSC Checklist to document this inspection for each point inside a critical zone, at a minimum.
Finalize Critical Zone Determinations	Not performing this verification step in the field may lead to a SSC strike.	Use information gathered during pre-planning, utility markout, and site walk/inspection to verify critical zones that have been previously established. Revise critical zones as necessary. Use the SSC Checklist to document points inside critical zones. If points are confirmed inside critical zones, either step out and relocate the ground disturbance location, or contact the PIC for additional guidance.
Establish Excavation Buffers	Mechanical digging near subsurface structures not already designated for removal can expose employees to electrical or other serious hazards.	For at least 2 feet in all directions from an identified subsurface stiucture, use non-conductive tools and physically remove soil.
Notify Equipment Operators where Excavation Buffers are Located	Mechanical digging near subsurface shructures not already designated for removal can expose employees to electrical or other serious hazards.	If physically clearing is performed, use cable avoidance tools at each location that must be physically cleared (OSHA requirement). If using a hand-auger, ensure insulated handles are in-piace before their use. DO NOT DIG INSIDE AN EXCAVATION BUFFER WITH MECHANICAL EQUIPMENT.

Personal Protective Equipment Required for this Task:

Type	Description
Insulated hand-augers	Hand-augers fitted with rubber handles, or other non-conductive material.

North America Job Hazard Analysis
ERM Actions During Subsurface Clearance and Excavations

Project Name:	Salt Lake Mixed Use Hotel Project
Project Number:	0107831
Job / Task Name:	PEG Development – Site Redevelopment
JHA No.: 7	

Training Required for this Task:

Type	Description
SSC Classroom Training	Initial classroom training detailing the ERM subsurface clearance process, tools, and forms.
SSC Experienced Person	At least one must be present on all sites involving SSC. The Experienced Person will both give SSC expertise in project execution and mentor less experienced employees.

Forms Associated with this Task:

Type	Description
SSC Checklist	Checklist detailing the ERM SSC process, and providing tools to ensure critical zones and excavation buffers are properly identified and validated in the field.
SSC Mentorship Card	The SSC Mentorship Card provides Experienced Persons with topics to be covered with less experienced employees on SSC sites, and also documents mentoring of the less experienced employees.
Daily Excavation Inspection Form	Form required to be used by ERM subcontractors to document daily inspection of excavations. Completed forms should be kept with the HASP and filed in project files.

Site-Specific Job Hazard Analysis Completed by:

Name	Date

North America Job Hazard Analysis
Airborne Contaminants and Reproductive Hazards

Project Name:	Salt Lake Mixed Use Hotel Project
Project Number:	0107831
Job / Task Name:	PEG Development - Site Redevelopment
JHA No.: 11	

Document Routing	
FSO	Retain copy in site health & safety file, amend to HASP as necessary.
Project Manager	Retain copy in the office health & safety file, amend to HASP as necessary.

Instructions:	**This JHA has been developed and approved by the North America Safety Team. Prior to conducting fieldwork. site-specific hazards related to this task must be incorporated by the project team. Once completed, the JHA should be reviewed regularly with site personnel who will be performing this task.**

Task Description:

Description of specific chemical air contaminants requiring additional regulatory actions.

Hazard Analysis:

Task Step	Hazard	Control Measures

North America Job Hazard Analysis
Airborne Contaminants and Reproductive Hazards

Project Name:	Salt Lake Mixed Use Hotel Project
Project Number:	0107831
Job / Task Name:	PEG Development – Site Redevelopment
JHA No.: 11	

Task Step	Hazard	Control Measures
Exposure to specific OSHA-regulated chemical hazards during work	Certain chemicals have been found to present more significant long-term health hazards to employees when they are exposed to them, including sensitization, development of certain cancers, and others.	If the following chemicals are being used on a jobsite, and work will occur for more than 30 consecutive days, OSHA regulations generally require a plan to mitigate exposures, additional training, and medical monitoring in some cases. • 13 carcinogens (see 29 CFR 1910. • Asbestos • Vinyl chloride • Inorganic arsenic • Lead • Hexavalent chromium • Cadmium • Benzene • Coke oven emissions • 1,2-dibromo-3-chloropropane • Acrylonitrile • Ethylene oxide • Formaldehyde • Methylenedianiline • 1,3-butadiene • Methylene chloride
Exposure to reproductive chemical hazards during work	Certain chemicals have been found to affect the reproductive systems in males and females and require additional personnel protection if used.	Chemicals posing reproductive hazards will be specified in site-specific HASPs. Follow all provisions of the HASP to minimize or eliminate exposure to reproductive hazards.

Personal Protective Equipment Required for this Task:

Type	Description
Varies	PPE varies depending on the specific chemical being used. Consult the HASP for jobsite-specific guidance.

North America Job Hazard Analysis
Airborne Contaminants and Reproductive Hazards

Project Name:	Salt Lake Mixed Use Hotel Project
Project Number:	0107831
Job / Task Name:	PEG Development - Site Redevelopment
JHA No.: 11	

Training Required for this Task:

Type	Description
Varies	Training that must be given to employees varies on the specific chemical being used. Consult the HASP for jobsite-specific guidance.

Forms Associated with this Task:

Type	Description
None	

Site-Specific Job Hazard Analysis Completed by:

Name	Date

North America Job Hazard Analysis
Personal Protective Equipment

Project Name:	Salt Lake Mixed Use Hotel Project
Project Number:	0107831
Job / Task Name:	PEG Development – Site Redevelopment
JHA No.: 13	

Document Routing	
FSO	Retain copy in site health & safety file, amend to HASP as necessary.
Project Manager	Retain copy in the office health & safety file, amend to HASP as necessary.

Instructions:	This JHA has been developed and approved by the North America Safety Team. Prior to conducting fieldwork. site-specific hazards related to this task must be incorporated by the project team. Once completed, the JHA should be reviewed regularly with site personnel who will be performing this task.

Task Description:

Guidelines for selection and use of personal protective equipment (PPE). PPE is only to be used after engineering and administrative controls have been considered and found to be non-feasible. Guidance for respiratory protection and fall protection is included in separate JHAs

Hazard Analysis:

Task Step	Hazard	Control Measures
General fieldwork	A head injury could occur from a falling or flying object, or a head injury could be sustained from bumping into something. Wearing a "typical" hardhat around electrical equipment may result in electrical shock.	A hard hat meeting the American National Standards Institute (ANSI) Z-89.1 standard must be worn. These hardhats contain an inner suspension system that should be checked regulatory to ensure straps are not worn and that space exists between the shell of the hardhat and the suspension straps. Electrical shock protection hardhats – Class A for low voltage (up to 2,200 volts), Class B for high voltage (up to 20,000 volts), and Class C for no electrical shock protection.
General fieldwork	A foot injury could occur from a falling or rolling object, or an object may pierce the sole of the shoe. Electiical shock may occur with steel-toe boots.	Steel toe protective footwear should be worn that meets or exceeds the American Society for Testing and Measurement (ASTM) F2413-05 standard. Footwear worn around electrical circuits should also be non-conductive.

North America Job Hazard Analysis
Personal Protective Equipment

Project Name:	Salt Lake Mixed Use Hotel Project
Project Number:	0107831
Job / Task Name:	PEG Development - Site Redevelopment
JHA No.: 13	

Task Step	Hazard	Control Measures
Cuttrng by hand	Hand injury could occur from handling an object with sharp edges of a fixed open-blade knife.	Fixed open-blade knives (such as pocket knives) may not be used on ERM jobsites, with few exceptions. If their use is required, cut-resistant gloves (such as Kevlar) must be worn and the PM or FSO must be informed prior to their use. Employees performing significant amounts of cutting tool use should wear high-visibility gloves to encourage awareness of where hands are being placed.
Handling chemicals by hand	Dermal exposure to hands from chemicals during soil and/or groundwater sampling.	Wear nitrile or latex protective gloves when handling sample media. Double-layering these gloves is a good idea for added protection. If acidic or caustic chemicals are present, wear outer neoprene or rubber gloves.
O&M or Subsurface Injectron	Dermal exposure to body from chemicals during operations and maintenance activities or subsurface liquid injection activities.	When working with commercial, full-strength chemicals ensure splash protection is worn (such as a polyethylene coated suit) and that gloves and boots are taped to the suit to prevent liquid splash.
General fieldwork Work around liquid splash and/or flying particle hazards	Foreign object or liquid splash to the eye.	Safety glasses conforming to the ANSI Z-87 standard must be worn for field activities. Safety glasses are appropriate for use when general eye protection is needed. For liquid splash hazards or hazards from flying particles, tight-fitting safety goggles should be worn. A faceshield should be considered for use when splash hazards from commercial, full-strength chemicals.
Work around active roadways	Struck by moving vehicles when working outside or along a roadway.	High-visibility safety vests should be worn when working in parking lots or by active roadways. Class I may be used when traffic is below 25 mph, Class II for 25-50 mph, and Class 3 for >50 mph.

North America Job Hazard Analysis
Personal Protective Equipment

Project Name:	Salt Lake Mixed Use Hotel Project
Project Number:	0107831
Job / Task Name:	PEG Development – Site Redevelopment
JHA No.: 13	

Task Step	Hazard	Control Measures
Work in high noise environments	Hearing damage from noise exposure greater than 85 decibels.	Attempt to perform work when elevated noise is not an issue. If work must be performed during high noise, wear hearing protection in the form of earplugs or earmuffs. Further details are given in the "Work in High Noise Environments" JHA.
O&M or Lockout/Tagout/Tryout	Electrical shock	Lockout/tagout/tryout should be performed by licensed electricians or others that have been specifically authorized by ERM to do so. PPE appropriate to this work includes a cotton t-shirt, Class II Electrical Arc Protection suit, Class O (low voltage) gloves, and non-conductive footwear.

Training Required for this Task:

Type	Description
Personal Protective Equipment	PPE training, normally included in 8-hour refresher training, provides guidance on the selection, inspection, use, maintenance, and decontamination of different types of PPE

Forms Associated with this Task:

Type	Description
None	

Site-Specific Job Hazard Analysis Completed by:

Name	Date

North America Job Hazard Analysis
Respiratory Protection

Project Name:	Salt Lake Mixed Use Hotel Project
Project Number:	0107831
Job / Task Name:	PEG Development - Site Redevelopment
JHA No.: 17	

Document Routing	
FSO	Retain copy in site health & safety file, amend to HASP as necessary.
Project Manager	Retain copy in the office health & safety file, amend to HASP as necessary.

Instructions:	This JHA has been developed and approved by the North America Safety Team. Prior to conducting fieldwork, site-specific hazards related to this task must be incorporated by the project team. Once completed, the JHA should be reviewed regularly with site personnel who will be performing this task.

Task Description:

Guidelines for selection, use, and maintenance of respiratory protection.

Hazard Analysis:

Task Step	Hazard	Control Measures
Offsite Preparation	Employee chemical exposure could occur or unqualified personnel could be put at risk if not specified early in the planning process.	The health and safety plan must specify the need for respirators, including the requirement that employees working on the project must be medically cleared to wear a respirator and have a current respirator fit-test on the type and model respirator they will be expected to wear. If organic vapor cartridges are to be used, develop a cartridge change schedule. Include the following exposure limits for each contaminant if they are available. The lowest exposure limit of these should be used as the trigger to don respiratory protection: • OSHA Permissible Exposure Limit (PEL) • NIOSH Recommended Exposure Limit (REL) • ACGIH Threshold Limit Value (TLV) • Immediately Dangerous to Life or Health (IDLH) Additionally, respirator cartridge types must be specified in the health and safety plan and available on-site.

North America Job Hazard Analysis
Respiratory Protection

Project Name:	Salt Lake Mixed Use Hotel Project
Project Number:	0107831
Job / Task Name:	PEG Development - Site Redevelopment
JHA No.: 17	

Task Step	Hazard	Control Measures
Prior to Using Respirator	Respirators that are not cleaned, inspected, or maintained well will not provide protection as designed.	Prior to donning a cartridge-type respirator, inspect to ensure it is in good condition, including straps, rubber sealing surfaces, and non-visible parts such as inhalation and exhalation valves. Do not use respirators with cracked rubber parts or stretched straps unless repaired. Clean if necessary using an alcohol wipe or mild soap and water solution. Cartridge-type respirators may not be used if chemical exposures exceed 10 times the OSHA PEL or are at IDLH levels. Inspect supplied air (SCBA at least monthly, and prior to each use. Inspections of SCBAs and other emergency-type respirators must be documented.
Don the Respirator	Incorrect seal on the respirator could cause employee chemical exposures.	Prior to donning respirators, personnel must be clean-shaven in areas of the face where the respirator seal touches, including any inner nose cups. For cartridge-type respirators, place the cartridges on the respirator facepiece. Cartridges should not be torqued to tighten (only slightly tightened). The respirator must be donned prior to other personal protective equipment in the head/neck area so that nothing comes between the respirator straps and the head surface. Safety glasses, hard hats, etc. must be donned after the respirator. Because of this, ERM prefers employees wear full-face respirators when possible. For cartridge-type respirators, perform a positive and negative fit-check to make sure the seal of the respirator is good.

North America Job Hazard Analysis
Respiratory Protection

Project Name:	Salt Lake Mixed Use Hotel Project
Project Number:	0107831
Job / Task Name:	PEG Development - Site Redevelopment
JHA No.: 17	

Task Step	Hazard	Control Measures
Performing Work Wearing Respirators	Tendency to readjust respirator facepieces when sweating is high, and can result in chemical exposures.	Excessive sweating may cause the respirator facepiece to slide on the wearer's face resulting in a compromised respirator seal. If this occurs, stop work and move to an area with no chemical contamination (go through the decontamination line if present), readjust the respirator, and perform positive and negative fit-checks to ensure a proper face seal.
	Particulate cartridge clogging may occur, or chemicals may break through chemical cartridges.	If using particulate cartridges (N, R, or P-types), and it becomes difficult to breathe, move to a clean area and change cartridges. If using chemical cartridges other than organic vapor-types, change cartridges if any amount of chemical odor breaks through the respirator cartridge. For organic vapor cartridges, change respirator cartridges according to the cartridge change schedule in the health and safety plan.
Doffing Respirators	Chemical exposure could occur if respirators are taken off incorrectly.	If a decontamination line is present, proceed through the line as directed. If no decontamination line is being used, all other personal protective equipment except gloves should be removed before taking the respirator off. Once removed, respirator cartridges should be discarded and facepieces cleaned. If sharing respirators, the respirator must be cleaned and sanitized before use by another employee.

Personal Protective Equipment Required for this Task:

Type	Description
None	

North America Job Hazard Analysis
Respiratory Protection

Project Name:	Salt Lake Mixed Use Hotel Project
Project Number:	0107831
Job / Task Name:	PEG Development - Site Redevelopment
JHA No.: 17	

Training Required for this Task:

Type	Description
Respirator Training	Annually-required training necessary for employees to wear positive or negative-pressure respirators.
Respirator Fit-Test	An annually-required test of the fit of a certain model and type respirator to an employee's face. All negative-pressure (filter or cartridge-type) and supplied-air facepieces must be fit-tests. Employees must be fit-tested on each model and type of respirator to be worn.

Forms Associated with this Task:

Type	Description
SCBA Inspection Checklist	Checklist documenting monthly inspection of self-contained breathing apparatus units (SCBA).

Site-Specific Job Hazard Analysis Completed by:

Name	Date

North America Job Hazard Analysis
Heavy Equipment Operations

Project Name:	PEG Development - Site Redevelopment
Project Number:	0107831
Job / Task Name:	PEG Development - Site Redevelopment
JHA No.: 19	

Document Routing	
FSO	Retain copy in site health & safety file, amend to HASP as necessary.
Project Manager	Retain copy in the office health & safety file, amend to HASP as necessary.

Instructions:	This JHA has been developed and approved by the North America Safety Team. Prior to conducting fieldwork, site-specific hazards related to this task must be incorporated by the project team. Once completed, the JHA should be reviewed regularly with site personnel who will be performing this task.

Task Description:

Guidelines for working around heavy equipment.

Hazard Analysis:

Task Step	Hazard	Control Measures
Offsite Preparation	Untrained workers operating heavy equipment pose potential life-threatening hazards to employees.	ERM policy and practice is that our employees do not operate heavy equipment except in unusual circumstances. If ERM personnel are to operate heavy equipment, this must be stated in the health and safety plan for the project. Only employees with training and/or demonstiated experience operating heavy equipment may do so. Subcontractor personnel operating heavy equipment must be trained and/or have demonstrated experience operating such equipment. ERM must be in possession of evidence of training and/or experience prior to Subcontractor personnel operating such equipment. All heavy equipment must meet applicable design standards (ANSI, etc.). A copy of the operating manual must be carried on all heavy equipment, including a load-rating chart and any special operating considerations.

North America Job Hazard Analysis
Heavy Equipment Operations

Project Name:	PEG Development - Site Redevelopment
Project Number:	0107831
Job / Task Name:	PEG Development - Site Redevelopment
JHA No.: 19	

Task Step	Hazard	Control Measures
Heavy Equipment Operation	Injury to operator and those in immediate vicinity.	Before starting operations, operators must ensure no one is working on or near machinery. If equipment is to he operated in close proximity to other workers, a spotter must be working in tandem with the operator. All heavy equipment must be inspected daily to ensure good working order. Critical safety items, such as brakes, backup alarms, horns, etc. must be in working order. Machinery with critical safety items in disrepair may not be used until they are fixed. Operators must operate equipment while wearing seatbelts, if provided, and at reasonable speeds. Mounting/dismounting a moving machine is prohibited. Do not transport personnel or equipment in machinery not designed for this purpose. Overhead obstructions must be assessed before operating machinery. If equipment is to be operated in close proximity to overhead obstructions, a spotter must be working in tandem with the operator. Safe working distances must be specified in the health and safety plan or JHA supplied by the subcontractor.
Ending Heavy Equipment Operations	Leaving equipment in a non-neutral position poses contact hazards.	All heavy equipment must be placed in a neutial position when not in operation. Dump truck beds must be lowered, buckets must be at ground level, forklift tines must be at ground level, etc. Keys must be removed from all heavy equipment when not in use4.

North America Job Hazard Analysis
Heavy Equipment Operations

Project Name:	PEG Development - Site Redevelopment
Project Number:	0107831
Job / Task Name:	PEG Development - Site Redevelopment
JHA No.: 19	

Personal Protective Equipment Required for this Task:

Type	Description
High-visibility safety vest	Vest worn by equipment operators and those working in the area impacted by moving machinery

Training Required for this Task:

Type	Description
Heavy Equipment Operation	Operators must be trained and/or have demonstrated experience for each type of heavy equipment they will operate.

Forms Associated with this Task:

Type	Description
Heavy Equipment Inspechon form	Form for documenting daily heavy equipment inspections

Site-Specific Job Hazard Analysis Completed by:

Name	Date

North America Job Hazard Analysis
Portable Hand and Power Tools

Project Name:	Salt Lake Mixed Use Hotel Project
Project Number:	0107831
Job / Task Name:	PEG Development - Site Redevelopment
JHA No.: 20	

Document Routing	
FSO	Retain copy in site health & safety file, amend to HASP as necessary.
Project Manager	Retain copy in the office health & safety file, amend to HASP as necessary.

Instructions:	This JHA has been developed and approved by the North America Safety Team. Prior to conducting fieldwork, site-specific hazards related to this task must be incorporated by the project team. Once completed, the JHA should be reviewed regularly with site personnel who will be performing this task.

Task Description:

Guidelines for working with portable hand and power tools.

Hazard Analysis:

Task Step	Hazard	Control Measures
Gather tools to take to jobsite	An improper tool available at jobsites encourages unsafe behaviors and could lead to injury.	Ensure tools taken to jobsites are kept in optimal condition (sharp, clean, oiled, etc.) to ensure efficient operation. Tools must only be used for their intended purposes - tools should not be used as pry-bars. Ensure power cords attached to powered-equipment are not damaged. Any damaged tool or electrical cord must be tagged and taken out of service.
Using cutting tools	Major and/or minor cuts to personnel	Fixed open-blade knives (such as pocket knives) may not be used on ERM jobsites, with few exceptions. If their use is required, cut-resistant gloves must be worn while using them and the PM or FSO must be informed prior to their use. Employees performing significant amounts of cutting tool use should must high-visibility gloves to encourage awareness of where hands are being placed.

North America Job Hazard Analysis
Portable Hand and Power Tools

Project Name:	Salt Lake Mixed Use Hotel Project
Project Number:	0107831
Job / Task Name:	PEG Development - Site Redevelopment
JHA No.: 20	

Task Step	Hazard	Control Measures
Using screwdrivers	Puncture injuries	Do not hold objects in the palm of your hand and press a screwdriver into it - these objects should be placed on a flat surface. Do not use screwdrivers as hammers, or use screwdrivers with broken handles. Use insulated screwdrivers for work on electrical equipment.
Using hammers	Creation of sparks	Use brass hammers in areas where creating sparks would pose ignition hazards.
	Particles may lodge in employee's eyes	Always use safety glasses when striking any object with a hammer. If hammer-head shows signs of mushrooming, replace it immediately.
	Loose handles may create a projectile hazard	Replace any hammer with a loose handle so the hammer-head does not detach and cause injuries.

Personal Protective Equipment Required for this Task:

Type	Description
High-visibility glove	Gloves typically in fluorescent green, orange, or yellow.
Cut-resistant glove	Limited protection is afforded by leather gloves from cuts. Kevlar gloves provide more protection when significant cut/puncture hazards exist.

Training Required for this Task:

Type	Description
None	

North America Job Hazard Analysis
Portable Hand and Power Tools

Project Name:	Salt Lake Mixed Use Hotel Project
Project Number:	0107831
Job / Task Name:	PEG Development – Site Redevelopment
JHA No.: 20	

Forms Associated with this Task:

Type	Description
None	

Site-Specific Job Hazard Analysis Completed by:

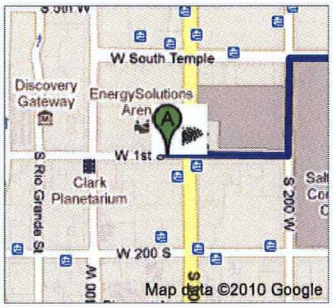
Name	Date

Google maps

Directions to Salt Lake Regional Medical Center
1050 East South Temple, Salt Lake City, UT 84102
- (801) 350-4111
2.2 mi – about **7 mins**

A W 100 S/W 1st S

1. Head **east** on **W 100 S/W 1st S** toward **S 300 W**
About 1 min



go 0.2 mi
total 0.2 mi

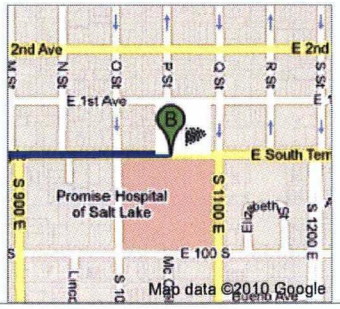
2. Turn **left** at **S 200 W**

go 0.1 mi
total 0.3 mi

3. Take the 1st **right** onto **W South Temple**
Destination will be on the right
About 5 mins

go 1.9 mi
total 2.2 mi

B Salt Lake Regional Medical Center
1050 East South Temple, Salt Lake City, UT 84102 - (801) 350-4111



These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

Directions weren't right? Please find your route on maps.google.com and click "Report a problem" at the bottom left.